Broadband Access Division

B-FOCuS™

270/285/400PR Router

Configuration Manual

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1. Introduction

This manual describes the configuration procedures performed after installing the B-FOCuS 270/285/400PR router. The manual is intended for use by skilled technicians with a solid background in telecommunications.

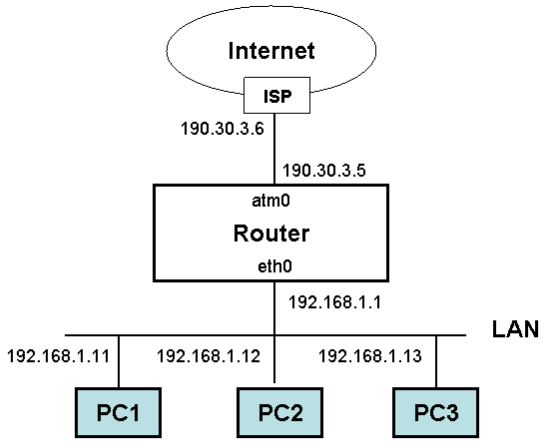
The B-FOCuS router enables the connection of computers interconnected by a local area network (LAN) to the Wide Area Network (WAN) via an ADSL dial-up network.

The FOCuS 270PR router has one Ethernet port. It can be connected to one computer or to up to 128 computers, by means of an Ethernet hub. The Ethernet port rate can be either 10 or100Mbps.

The FOCuS 285PR router resembles the FOCuS 270PR router, but has an additional USB link (so you can connect it to two computers).The FOCuS 400PR router has an internal Ethernet hub with four ports. It can connect up to four computers to a common ADSL line. The Ethernet ports rates can be either 10 or100Mbps.

The router can be installed either as a bridge (in layer 2 of the Communication model) or as a router (in layer 3 of the Communication model). It contains an internal dialer, as well as additional services, such as Dynamic Host Configuration Protocol (DHCP), Network Address Translation (NAT) and Firewall. The configuration software is burned into a flash memory. You can modify it to your needs according to the type of local network, the type of telephony infrastructure and the agreements you made with the suppliers of telephony and Internet services.

The following figure describes a typical connection of the B-FOCuS 400PR router to the LAN and the WAN. The router routes the traffic among these networks.



By definition, the IP address of each new router at the eth0 port at the LAN side is 192.168.1.1 and the subnet mask is 255.255.255.0. These definitions can be modified as part of the configuration.

This manual describes all the configuration user interface features. It also presents typical workflows of using the configuration definition interface.

2. Preparatory Actions

2.1. Required Infrastructure

To be connected to the router, the computer requires the following:

- CPU: At least 266MHz.
- An Ethernet Network Interface Card: Either 10Mbps or 100Mbps.
- Operating System: Windows 98, NT, ME, 2000 or XP, Unix or Macintosh.
- Browser: Internet Explorer, version 5.5 and above.

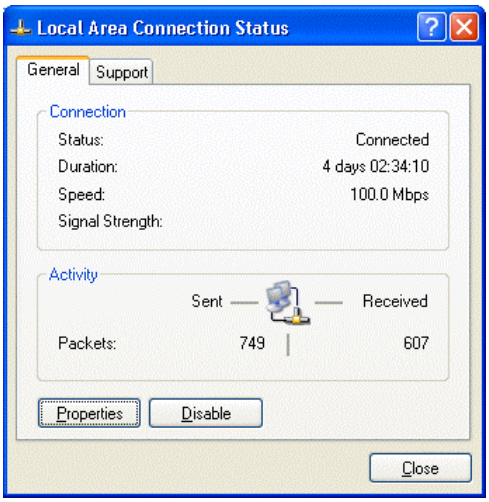
2.2. Defining the Computer in the LAN

Prior to invoking the configuration software, the computer should be defined on the same subnet with the router.

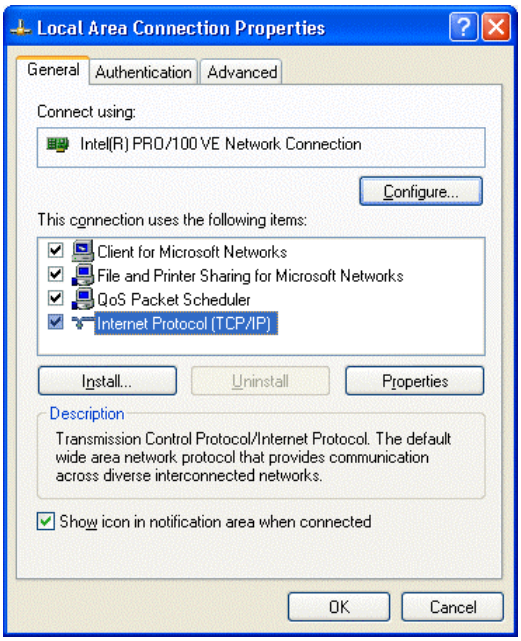
The access to the definition windows differs somewhat for the various operating systems. The example presented here refers to Windows XP.

➢ **To redefine the computers in the Local Area Network (LAN):**

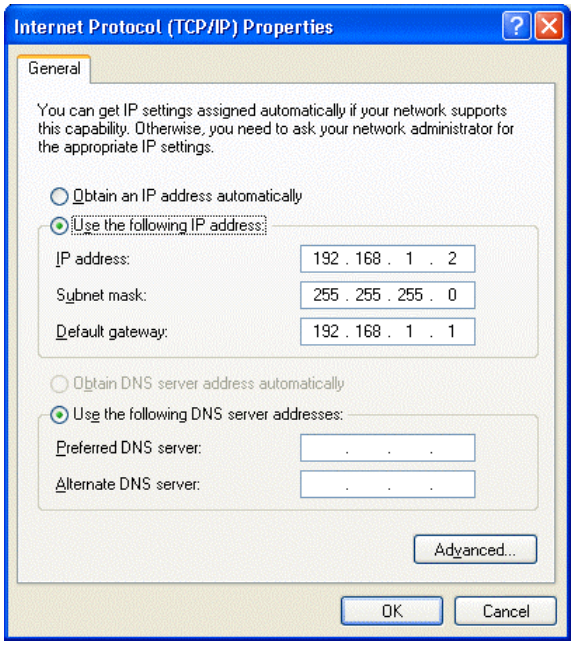
1. From the Start menu, select **Settings > Control Panel > Network Connections**. The Network Connections dialog box appears.
2. From the list of connections to networks, select the Network Interface Card you used for connecting the computer to the router's eth0 port. The Local Area Connection Status dialog box appears.



3. Click **Properties**. The Local Area Connection Properties dialog box appears.



4. Check that the name of the Network Interface Card you used for connecting the computer to the router's eth0 port appears in the Connect using field. Select Internet Protocol (TCP/IP) and then click **Properties**. The Internet Protocol (TCP/IP) Properties dialog box appears.


Internet Protocol (TCP/IP) Properties
General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address: 192 . 168 . 1 . 2
Subnet mask: 255 . 255 . 255 . 0
Default gateway: 192 . 168 . 1 . 1
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Advanced...
OK
Cancel

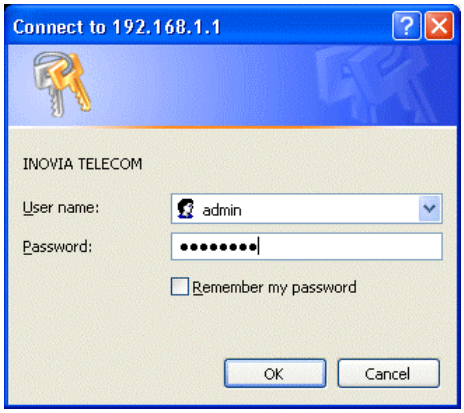
5. Select the **Use the following IP address** radio button. Define a unique IP address for the computer, in the same subnet where the router is defined (its format should be 192.168.1.n, where n is a unique integer from 2 to 255). In the Subnet mask field, enter 255.255.255.0. In the Default gateway field, enter 192.168.1.1 (the router's IP address.
6. Click **OK**. The Local Area Connection Properties dialog box reappears.
7. Click **OK**. The Local Area Connection Status dialog box reappears.
8. Click **Close** to close the definition dialog box.

3. Activation

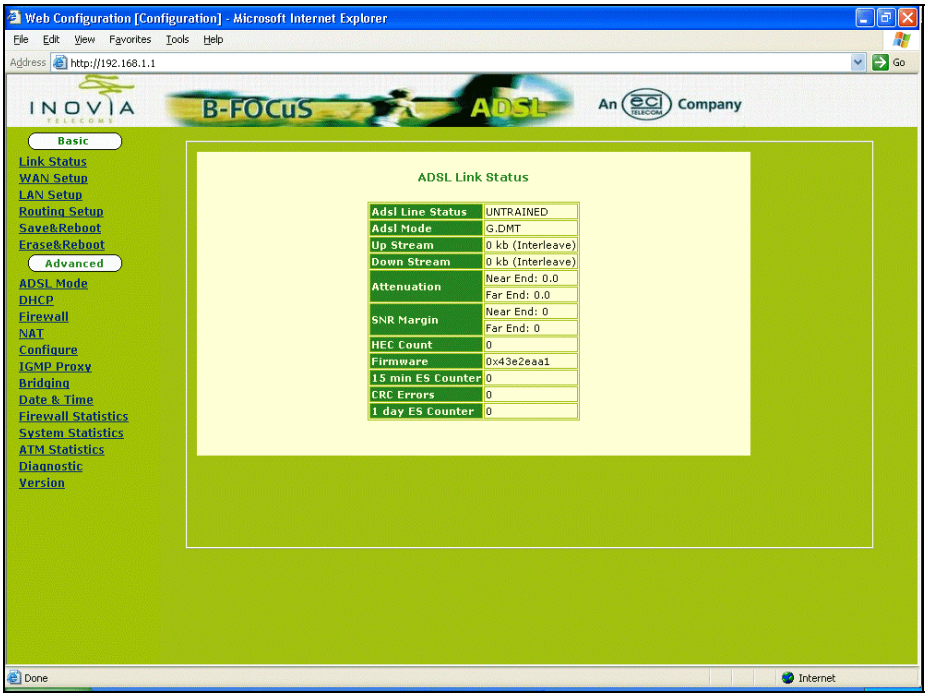
To activate the configuration software, you should first connect the router to the computer (or to the LAN), to the telephony network and to the electric power system (see *Connection Diagram*).

➢ **To activate the configuration software:**

1. Open an Internet browser.
2. In the address line enter the router's IP address: 192.168.1.1. A login dialog box appears.



3. Enter the user name: **admin** and the password: **Bezeqwow**. Click OK. The configuration software's opening window appears.



The menus are displayed at the left side of the window. They are divided into two groups:

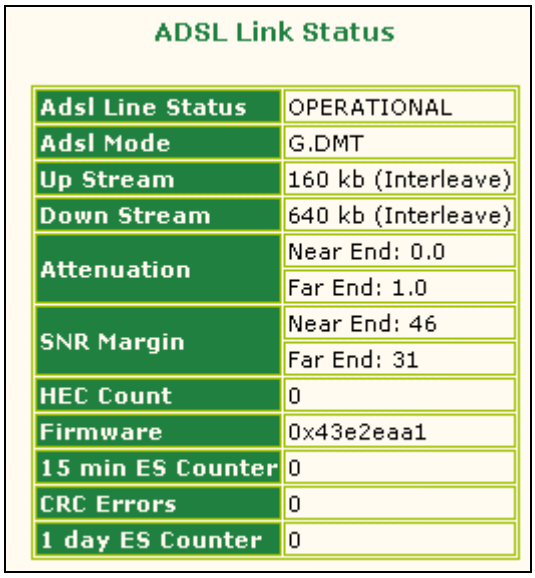
- Basic operations.
- Advanced operations.

The display on the right side of the window differs according to the menu selection on the left side. The display presents the default router parameters. Configurable fields can be used to modify the initial settings for customizing the router to specific needs.

4. Basic Operations

4.1. Link Status

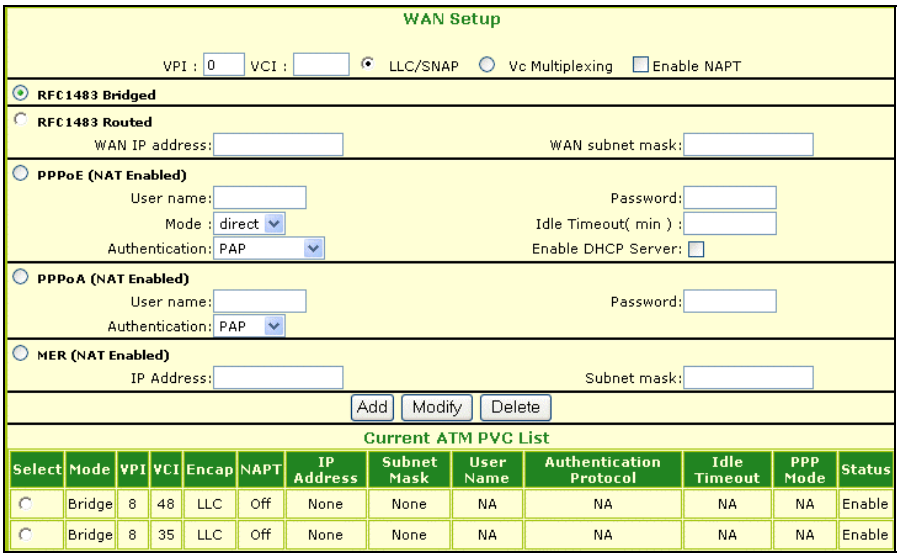
Upon initializing, the current settings of communication parameters are displayed.



This window presents the status of the ADSL communication, the line quality, the transfer rates in the upstream and downstream directions and additional parameters.

4.2. WAN Setup

When the WAN Setup menu is selected from the Basic menu, the WAN Setup dialog box appears.


WAN Setup
VPI : 0 VCI : LLC/SNAP Vc Multiplexing Enable NAPT
RFC1483 Bridged
RFC1483 Routed
WAN IP address:
WAN subnet mask:
PPPoE (NAT Enabled)
User name:
Password:
Mode : direct
Idle Timeout(min) :
Authentication: PAP
Enable DHCP Server:
PPPoA (NAT Enabled)
User name:
Password:
Authentication: PAP
MER (NAT Enabled)
IP Address:
Subnet mask:
Add Modify Delete
Current ATM PVC List
Select Mode VPI VCI Encap NAPT IP Address Subnet Mask User Name Authentication Protocol Idle Timeout PPP Mode Status
Bridge 8 48 LLC Off None None NA NA NA NA Enable
Bridge 8 35 LLC Off None None NA NA NA NA Enable

The router's software supports a collection of transformation protocols for connecting computers to service suppliers over the public network's ADSL infrastructure. The router can be configured in one of the following configurations:

- RFC 1483 Bridged.

- RFC 1483 Routed.
- PPPoE (PPP over Ethernet).
- PPPoA (PPP over ATM).
- MER (currently not applicable).

A newly installed router is configured as RFC 1483 bridged. In the following sections, we will explain how this default setting can be modified.

As a first step, Permanent Virtual Circuits (PVC) and Virtual Channel Connection (VCC) should be defined in the ATM network. This definition is performed at the top of the WAN Setup dialog box. Define:

- VPI within the range of 0 to 255.
- VCI within the range of 0 to 65535.
- The type of encapsulation, either LLC/SNAP or Vc Multiplexing.
- Whether NAT is supported.

At the bottom of the WAN Setup dialog box there is a table showing current definitions. You can add, remove or edit lines. In order to apply the new or updated definitions to the router, you must save the definitions made via the configuration software to the router's flash memory and then reboot it.

4.2.1. RFC 1483 Bridged

In this configuration, Ethernet frames are bridged over ATM virtual channels. The Ethernet frames are encapsulated using either the LLC/SNAP or Vc Multiplexing method. The router is only responsible for transferring the frames between the LAN and the Internet service provider. If the router's DHCP server is activated, it assigns IP address to the computers for communication with the WAN. If the DHCP server is not activated, IP addresses are dynamically supplied by the Internet Service Provider (ISP). NAPT and Firewall are not supported.

4.2.2. RFC 1483 Routed

In this configuration, IP packets are routed over ATM virtual channels. The Ethernet frames are encapsulated using either the LLC/SNAP or Vc Multiplexing method. The router is only responsible for transferring the packets between the LAN and the Internet service provider. If the router's DHCP server is activated, it assigns IP addresses to the computers for communication with the WAN. If the DHCP server is not activated, a dummy IP address is assigned to each computer by itself, and this address can be used for communication with the WAN. In addition, an internal DHCP server and NAPT can be used for translating IP addresses between the WAN and the LAN (to avoid exposing the local addresses).

4.2.3. PPP Over Ethernet

In this configuration, additional management services can be activated, like authentication and efficient bandwidth management (by closing inactive sessions). Additional parameters should be defined:

- User name, password and authentication protocol (in most of the cases PAP is used).
- Whether the call is connected constantly (Direct) or the connection is established only when real communication activity with the WAN is performed (Auto).
- In Auto state, define the length of idle time after which the call is disconnected.

In PPP configuration, IP addresses for accessing the WAN are supplied by the ISP to the router. When the router is activating the internal DHCP, it supplies IP addresses to the computers in the LAN. This must be done to enable surfing the Internet from a computer in the LAN. In addition, NAPT must be activated to translate IP addresses between the LAN and the WAN.

4.2.4. PPP Over ATM

In this configuration, authentication services can be activated. These additional parameters should be configured: user name, password and authentication protocol.

In PPP configuration, IP addresses for accessing the WAN are supplied by the ISP to the router. When the router is activating the internal DHCP, it supplies IP addresses to the computers in the LAN. This must be done to enable surfing the Internet from a computer in the LAN. In addition, NAPT must be activated to translate IP addresses between the LAN and the WAN.

4.2.5. Adding, Editing and Deleting Configurations

➢ **To add a new configuration:**

1. Select the radio button representing the required configuration.
2. Modify the required parameters at the top of the WAN Setup dialog box.
3. Modify the required parameters in the area relevant to the selected configuration.
4. Click **Add**.
5. Check that the new configuration appears in the table at the bottom of the dialog box.

➢ **To edit a configuration:**

1. Select the line you want to edit from the table at the bottom of the dialog box.
2. Modify the required parameters at the top of the WAN Setup dialog box.
3. Modify the required parameters in the area relevant to the selected configuration.
4. Click **Modify**.
5. Check that the changes are reflected in the table at the bottom of the dialog box.

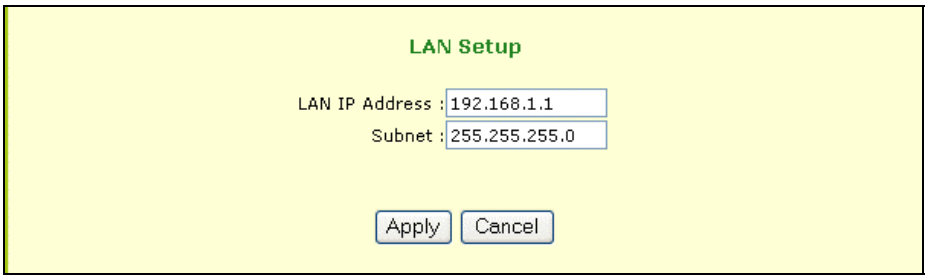
Note: You cannot change the VCI and VPI values using the Modify command. Instead, delete the old line from the table at the bottom of the dialog box and add a new line with the new parameters.

➢ **To delete a configuration:**

1. Select the line you want to delete from the table at the bottom of the dialog box.
2. Click **Delete**.
3. Check that the line is deleted from the table at the bottom of the dialog box.

4.3. LAN Setup

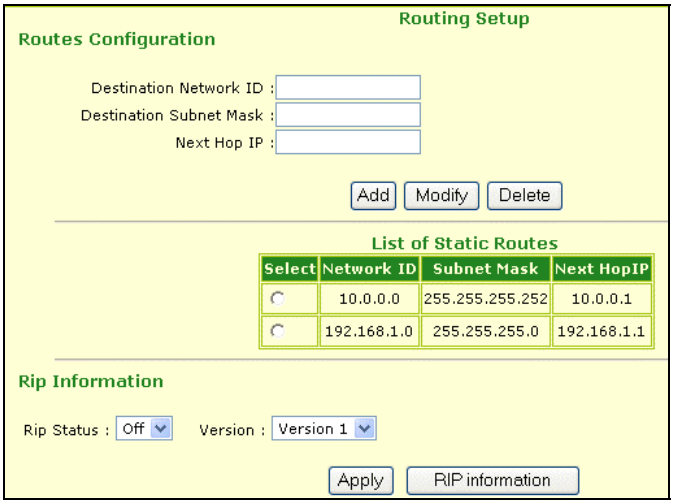
When the LAN Setup menu is selected from the Basic menu, the LAN Setup dialog box appears:



Define the IP address and subnet mask of the router towards the LAN (port eth0) and click **Apply**.

4.4. Routing Setup

When the Routing Setup menu is selected from the Basic menu, the Routing Setup dialog box appears.

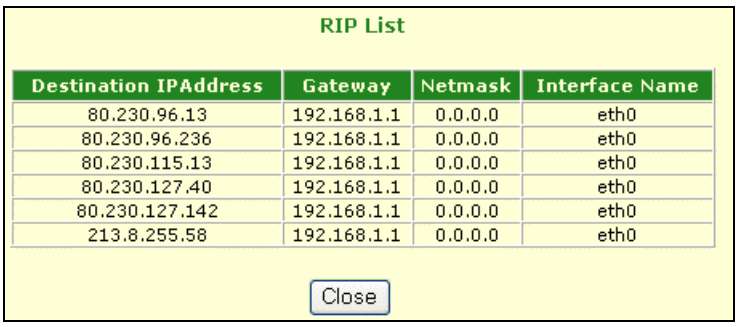


The table displays all the routers recognized in the network. It contains both static routing lines that can be edited (added, edited, deleted) and dynamic routing lines, generated dynamically by the router's communication protocol. The routing table defines through which port each packet is sent, according to its specified destination.

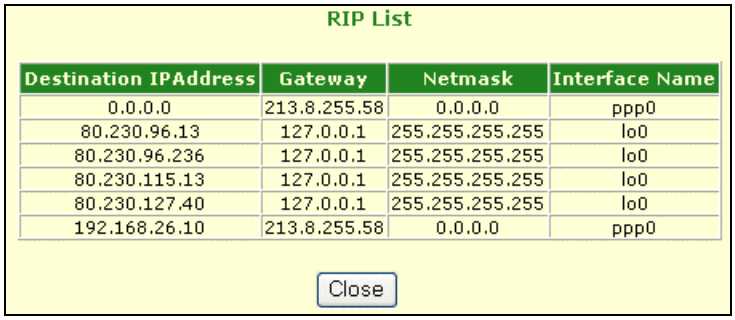
After a new router is installed, the RIP protocol is set by default to Off. To activate it, the status must be changed to On. In addition, you can define the RIP version to be used.

For additional information concerning the RIP protocol, click **RIP Information**. The RIP List window appears.

This list appears for the B-FOCuS 270/285PR.



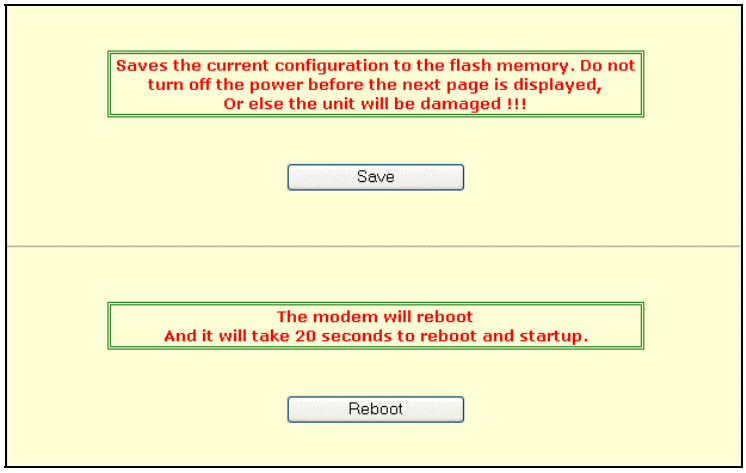
This list appears for the B-FOCuS 400PR.



4.5. Save & Reboot

When a new configuration has been defined, it must be burned into the router's internal flash memory. Then the router must be restarted. The new configuration becomes effective only after it has been saved and the router has been restarted.

When selecting Save & Reboot from the Basic menu, the following dialog box appears.

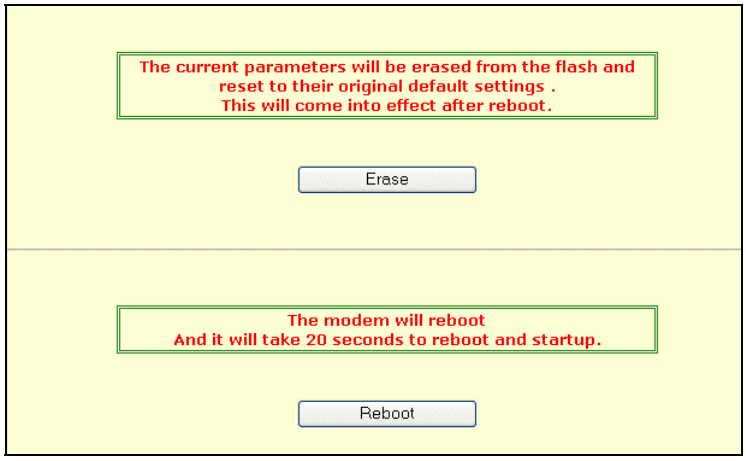

Saves the current configuration to the flash memory. Do not turn off the power before the next page is displayed, Or else the unit will be damaged !!!
Save
The modem will reboot And it will take 20 seconds to reboot and startup.
Reboot

Click **Save**. When an acknowledgement is received, click **Reboot**.

4.6. Erase & Reboot

If you want to return to the default configuration settings, you must erase the changes you have made and restart the computer. The default configuration becomes effective only after the reboot.

When selecting Erase & Reboot from the Basic menu, the following dialog box appears.

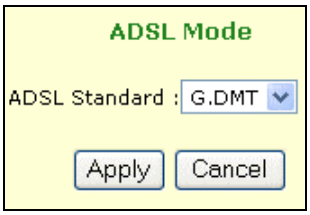

The current parameters will be erased from the flash and reset to their original default settings .
This will come into effect after reboot.
Erase
The modem will reboot
And it will take 20 seconds to reboot and startup.
Reboot

Click **Erase** first. When an acknowledgement is received, click **Reboot**.

5. Advanced Operations

5.1. ADSL Mode

When selecting ADSL Mode from the Advanced menu, this dialog box appears.



Currently only G.DMT is supported.

5.2. DHCP

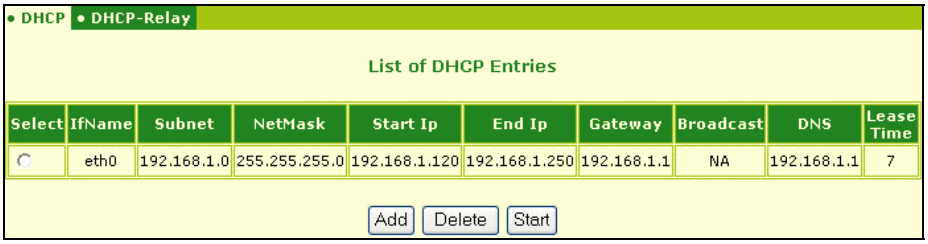
The DHCP protocol enables dynamic allocation of IP addresses for efficient use of the address reservoir. The router can operate in two modes:

- As a server (allocating addresses to computers in the LAN).
- As a relay (relaying the request from the LAN to a specific DHCP server at the WAN).

When one mode of operation is selected, the second mode becomes inactive.

Note: When there is a DHCP in the LAN, port eth0 can be defined as a client and receive an IP address from it. This mode can be configured using the Configure option in the Advanced menu. See *Configure*.

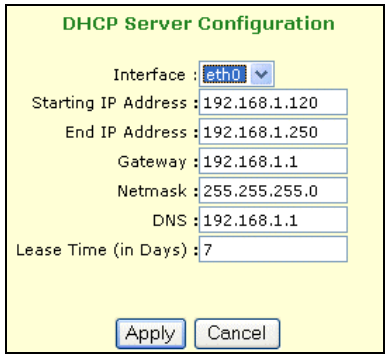
5.2.1. The Router as a DHCP Server



The DHCP tab enables defining parameters when the router is configured as a DHCP server. Each line can be used to define a range of IP addresses to be allocated to each sub-network. Initially, each new line is in Stop mode. To activate it, select it and click the **Start** button (it immediately toggles itself to Stop). The router will implement the new definitions only after Save and Reboot are applied.

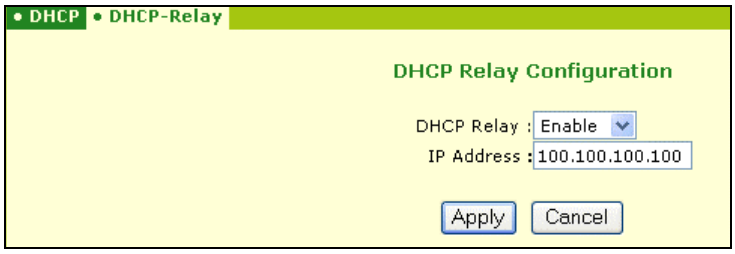
➢ **To add a new line:**

1. Click **Add**. The DHCP Server Configuration dialog box appears.



2. Define:
   - Interface. Only eth0 is supported, as the router acts as a DHCP Server towards the LAN.
   - IP address range for allocation in the LAN.
   - Default gateway (the router's IP address towards the LAN).
   - Subnet mask.
   - IP address of the Domain Name Server (DNS). Since the DNS resides in the WAN, enter the IP address of the default gateway used to access the WAN.
   - The number of days for leasing the address.
3. Click **Apply**.
4. Perform Save & Reboot.

5.2.2. The Router as a DHCP Relay



➢ **To define the router as a DHCP relay:**

1. Define the address of the DHCP in the WAN.
2. Change the DHCP Relay mode to **Enable**.
3. Click **Apply**.
4. Perform Save & Reboot.

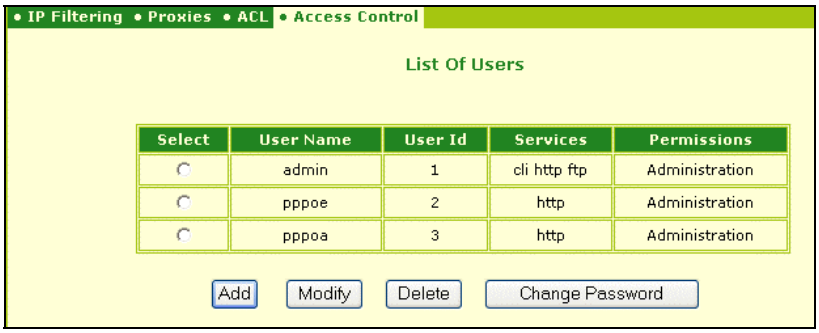
5.3. Firewall

The firewall filters the traffic between the LAN and the WAN. Logically, it is positioned before the router in the WAN, to filter the downstream traffic arriving from the Internet and before the router in the LAN, to filter the upstream traffic from the LAN towards the Internet.

The filtering is performed by defining users (of the router's services); assigning for each user access permissions to the router and to the WAN; and defining filtering rules that apply to certain users and certain types of traffic.

5.3.1. Users Control

The Access Control tab is used to define the router's users and to control the permissions for accessing the router itself and the WAN via the router.



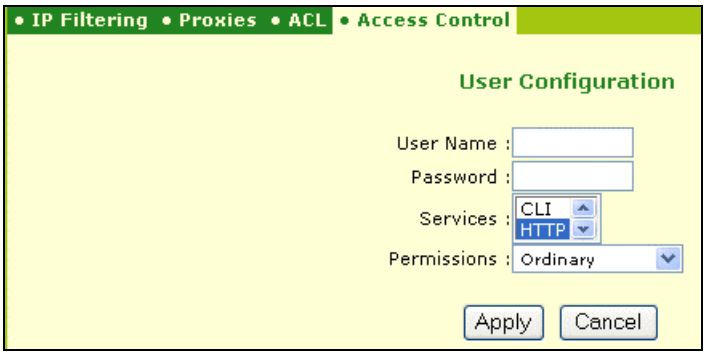
Three users are defined by default:

- **admin** is a user permitted to perform all the available definitions. In addition, he can use CLI (Telnet), HTTP or FTP to access the configuration user interface. To login as an administrator, use the user name: **admin** and the password: **Bezeqwow** (see *Activation*).
- **Pppoa** and **pppoe** are users with administrator's permissions, but they can access the configuration user interface only via HTTP.

An administrator (as defined in the Permissions field), can add, modify and delete all the router's parameters. An ordinary user can only view parameters defined by default or by the administrator.

➢ **To add a new user:**

1. Click **Add**, The User Configuration dialog box appears.



2. Define user name, password, access services and permissions. The length of the password should be at lease 16 characters.
3. Click **Apply**.

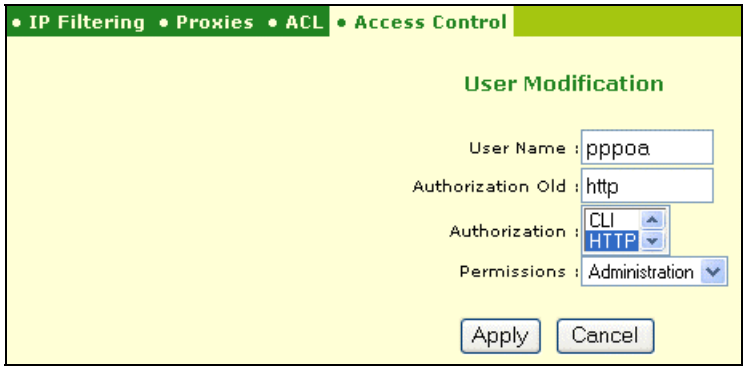
➢ **To delete a user:**

1. Select the required user using the radio button.

2. Click **Delete**.

➢ **To modify the parameters of an existing user:**

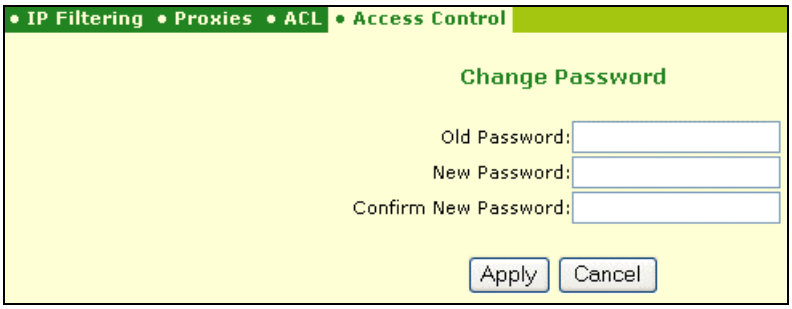
1. Select the required user using the radio button.
2. Click **Modify**. The User Modification dialog box appears.



3. Modify the required parameters (user name, password, access services and permissions) and click **Apply**.

➢ **To change the user's password:**

1. Select the required user using the radio button.
2. Click **Change Password**. The Change Password dialog box appears.



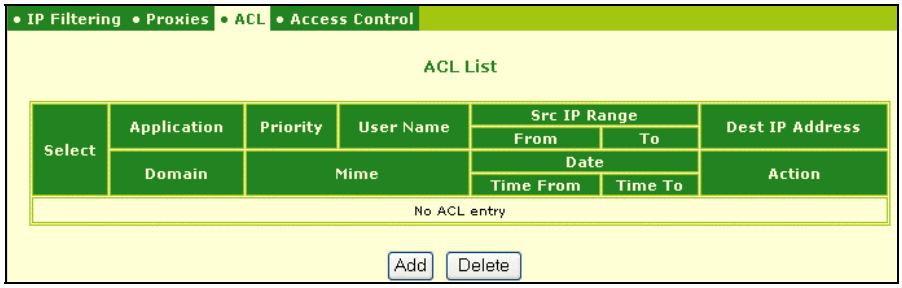
3. Enter the old password and the new password (twice). The length of the password should be at least 16 characters.
4. Click **Apply**.

5.3.2. Access Control List (ACL)

This tab enables control over the traffic to and from the LAN. The control is performed by a proxy. The proxy must be defined both in the computer (using the browser's software) and in the router (see *Proxy*).

The proxy serves as a gatekeeper to the LAN. When a user wants to access the Internet via the router, it should first pass through the proxy, and then the ACL is applied.

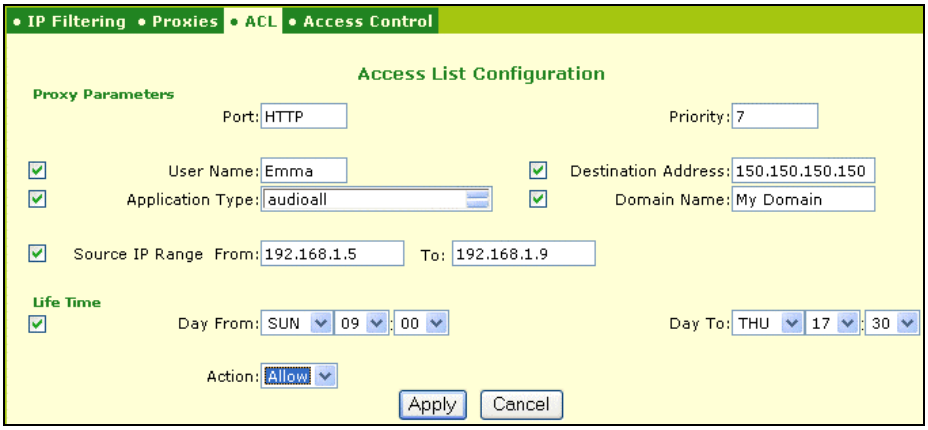
Note: The router's restrictions are only implemented for HTTP proxy.



The ACL List displays the defined access rules.

➢ **To add a new rule definition:**

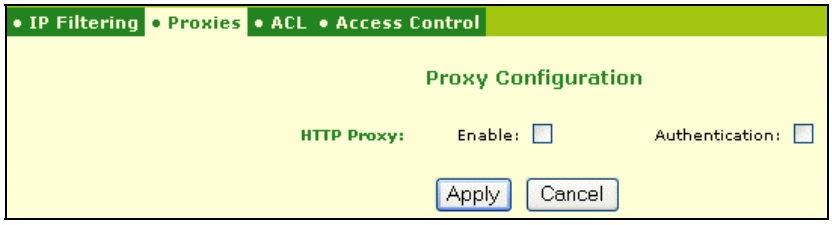
1. Click **Add**. The Access List Configuration dialog box appears.



2. Select whether you want to apply the rule to specific users (from the list of users defined at the Access Control tab) or to all users. If you check the User Name checkbox, you must define a specific user. Otherwise, the rule applies to all users.
3. Define these parameters:
   - The priority of this rule relative to other rules.
   - Destination address in the WAN.
   - IP address range in the LAN.
   - Domain name.
   - The applications to which the rule applies (for example: Audio All blocks downloading audio files).
   - Time range over which the rule applies (within a weekly frame).
   - Whether the defined traffic should be blocked or allowed.
4. To add the rule to the ACL list, click **Apply**.

5.3.3. Proxy

The Proxies tab enables authentication of each user who tries to access the WAN from the LAN.



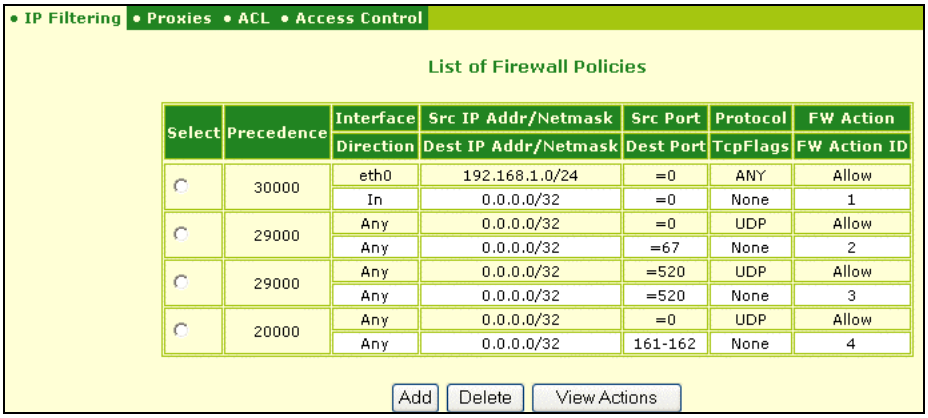
As a default, the proxy and the authentication process are disabled. If you want to apply the ACL rules, you must enable the proxy.

Note: The proxy must be defined in the router as well as in all the LAN computers.

5.3.4. IP Level Filtering

As a default, the firewall enables opening any session from the LAN to the WAN, but no session in the opposite direction.

The traffic filtering is performed by rules (Policies) that are applied to it in a prioritized order. When a new package appears, the firewall checks whether the top priority rule applies to it. If it does, a decision is made whether to transfer or to block it (in accordance with the rule). If it does not apply, the next prioritized rule is applied, and so on, until the end of the list.



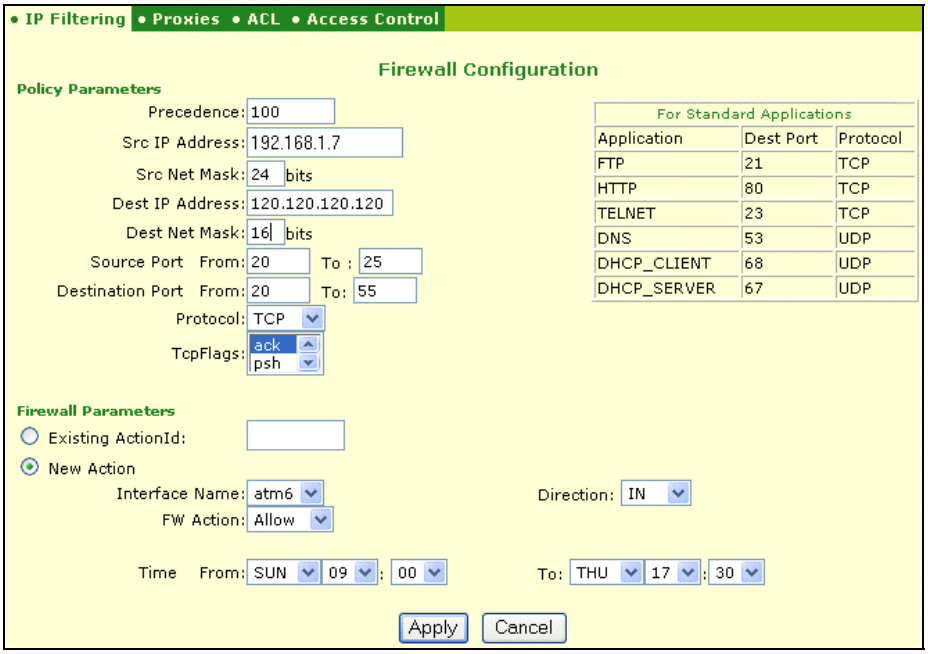
Select	Precedence	Interface / Direction	Src IP Addr/Netmask / Dest IP Addr/Netmask	Src Port / Dest Port	Protocol / TcpFlags	FW Action / FW Action ID
○	30000	eth0	192.168.1.0/24	=0	ANY	Allow
		In	0.0.0.0/32	=0	None	1
○	29000	Any	0.0.0.0/32	=0	UDP	Allow
		Any	0.0.0.0/32	=67	None	2
○	29000	Any	0.0.0.0/32	=520	UDP	Allow
		Any	0.0.0.0/32	=520	None	3
○	20000	Any	0.0.0.0/32	=0	UDP	Allow
		Any	0.0.0.0/32	161-162	None	4

The List of Firewall Policies presents the defined rules. Note that the priority is higher as the Precedence number is lower. Each rule has a unique identifier called FW Action ID.

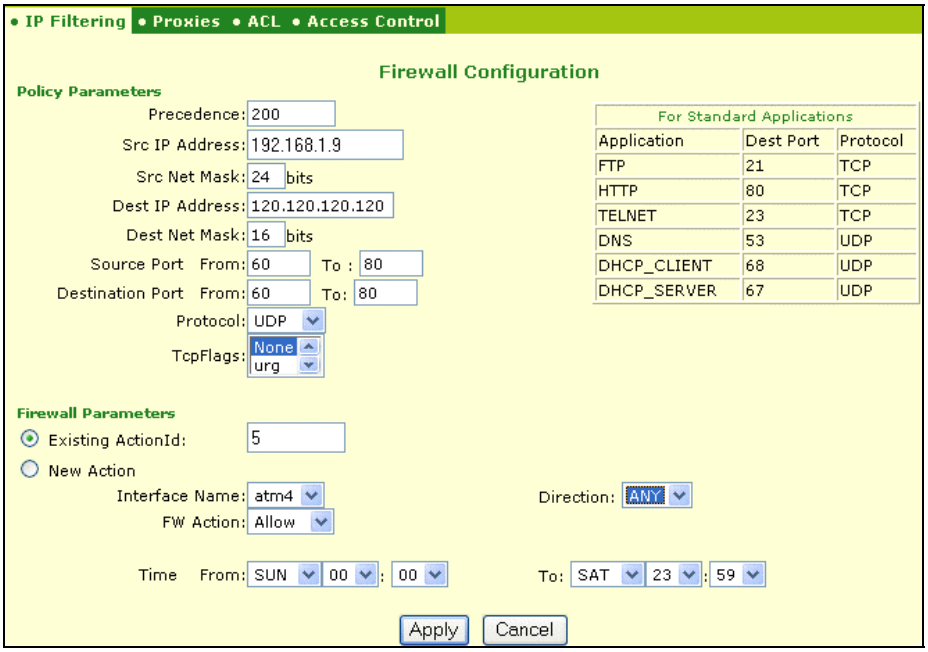
As a default, the rules presented in the figure (30000, 29000 and 20000) are applied. These rules cannot be deleted, yet they can be copied and assigned with lower priority.

➢ **To add a new rule:**

1. Click **Add**. The Firewall Configuration dialog box appears.



2. Define the rule's parameters:
   - Precedence (an integer from 1 to 64K).
   - Source IP address and subnet mask.
   - Destination IP address and subnet mask.
   - Source port range.
   - Destination port range (use the list).
   - Protocol.
   - When TCP is selected, you may define also specific flags.
5. Apply the rule to the traffic via the firewall. You can do this in one of two ways:
   - Define a new Action ID. In this case you should define:
     - An interface (selected from the list).
     - The direction of traffic relative to the WAN ("In" refers to Upstream – from LAN to WAN, "Out" refers to Downstream – from WAN to LAN).
     - The action applied to the specified traffic – Allow or Deny.
     - Time range for the rule's application.
   - Apply an existing Action ID.

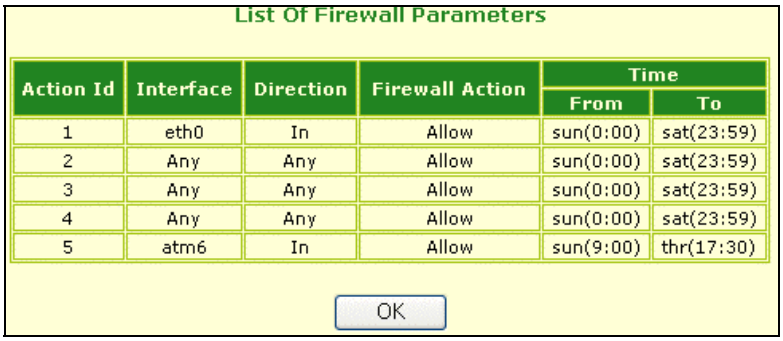


In this case, enter the number of an existing Action ID. The rule's application parameters are copied from the original definition. You can redefine the precedence to apply this rule at a higher priority.

6. Click **Apply**.

➢ **To view the rules you have defined:**

In the IP Filtering tab click **View Actions**. The List of Firewall Parameters dialog box appears.


List Of Firewall Parameters
Action Id Interface Direction Firewall Action Time From To
1 eth0 In Allow sun(0:00) sat(23:59)
2 Any Any Allow sun(0:00) sat(23:59)
3 Any Any Allow sun(0:00) sat(23:59)
4 Any Any Allow sun(0:00) sat(23:59)
5 atm6 In Allow sun(9:00) thr(17:30)
OK

You can see the parameters common to all rules having the same Action ID.

5.4. NAPT

The Network Address Port Translation (NAPT) protocol translates IP addresses from LAN to WAN and vice versa. This is performed for efficient use of the IP address range and for protection of privacy. Each package contains in its header the addresses of the source and the destination. In addition, it contains the identity of source and destination ports. This information is required to identify the application that has generated the data (such as: HTTP, FTP, Telnet, Yahoo Messenger).

The NAPT service is characterized by two IP addresses: one towards the WAN and the other towards the LAN. From the WAN side, all the LAN computers reside under the same address. When a computer in the LAN initiates access to the WAN, the

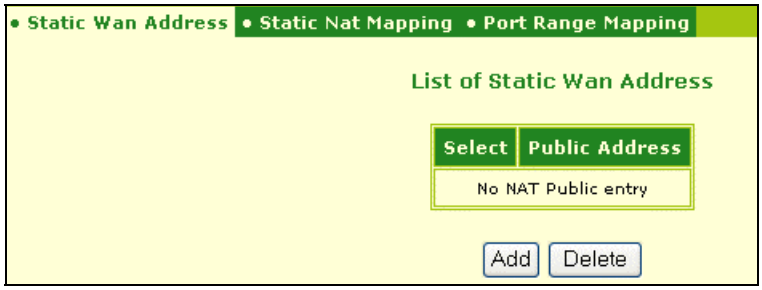
NAPT translates its IP address and port number to other values. When the answer arrives from the WAN, the NAPT server knows how to route it to the originating computer. From the WAN side it is impossible to initiate access to a specific computer within the LAN, unless the proper permissions have been defined.

The router supports three modes of operation:

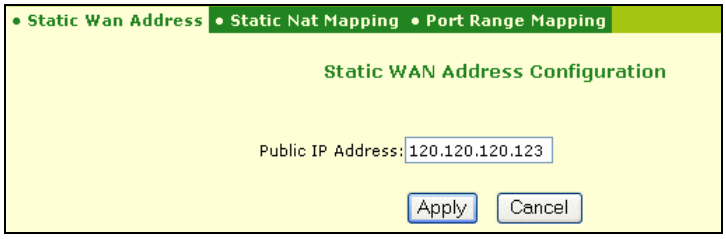
- Static IP address in WAN.
- Mapping address from WAN to LAN.
- Mapping port numbers from WAN to LAN.

5.4.1. Static IP address in WAN

You can define a static IP address for the router, from the WAN side. The address is received from the ISP.



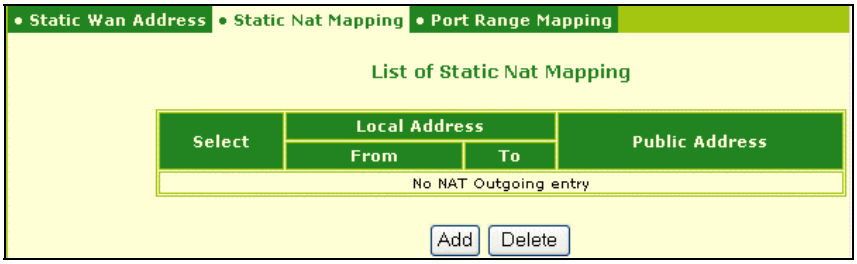
To add a new line, click **Add**. The Static WAN Address Configuration dialog box appears.



Enter the IP address you have received from the ISP and click **Apply**.

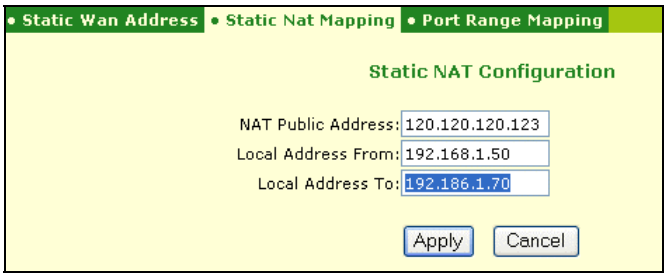
5.4.2. Static Mapping of IP Addresses

Static mapping of IP addresses enables access from the WAN to the LAN, while preserving privacy. The static mapping list presents the router's IP address towards the WAN and the range of IP addresses to be allocated to the LAN's computers by the internal DHCP. A few lines can be used to map a few internal IP address ranges to a few WAN addresses.



➢ **To add a line to the list:**

1. Click **Add**. The Static NAT Configuration dialog box appears.



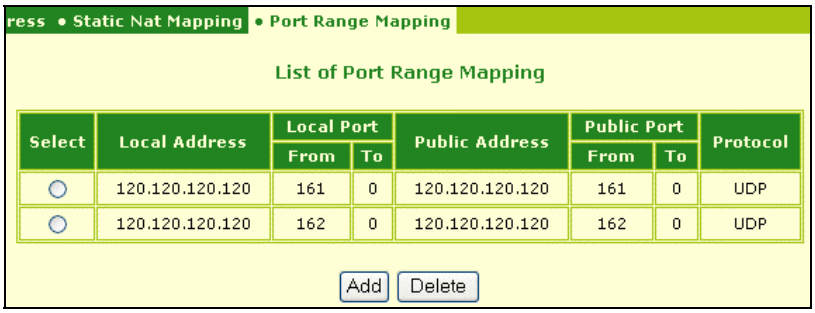
2. Define the IP address towards the WAN and the IP addresses range for allocation in the LAN.

Note: To enable traffic from the WAN to the LAN, define the same IP address in the Local Address From and in the Local Address To fields. In addition, open the applicable port in the Firewall (see *IP Level Filtering*).

3. Click **Apply**.

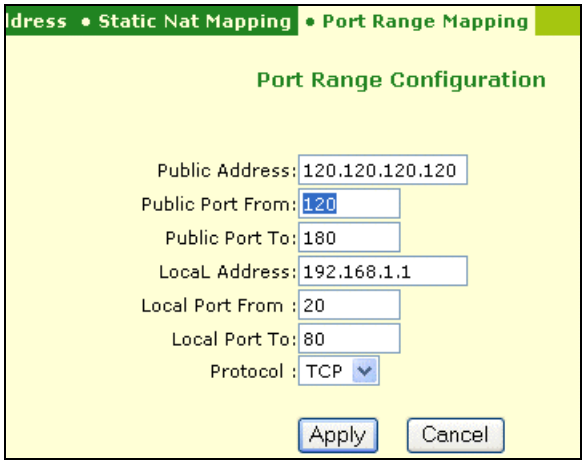
5.4.3. Static Mapping of Port Numbers

Static mapping of port numbers enables access from the WAN to the LAN while preserving privacy. The static mapping list shows the router's IP address for the WAN, the IP address for the LAN and the port's range for traffic from the WAN to the LAN. A few lines can be used to map a few port ranges in the WAN to a few internal IP addresses in the LAN.



➢ **To add a line to the list:**

1. Click **Add**. The Port Range Configuration dialog box appears.



2. Define the public address, the public port range, the local address, the local port range and the layer 4 protocol (UDP or TCP).
3. Click **Apply**.

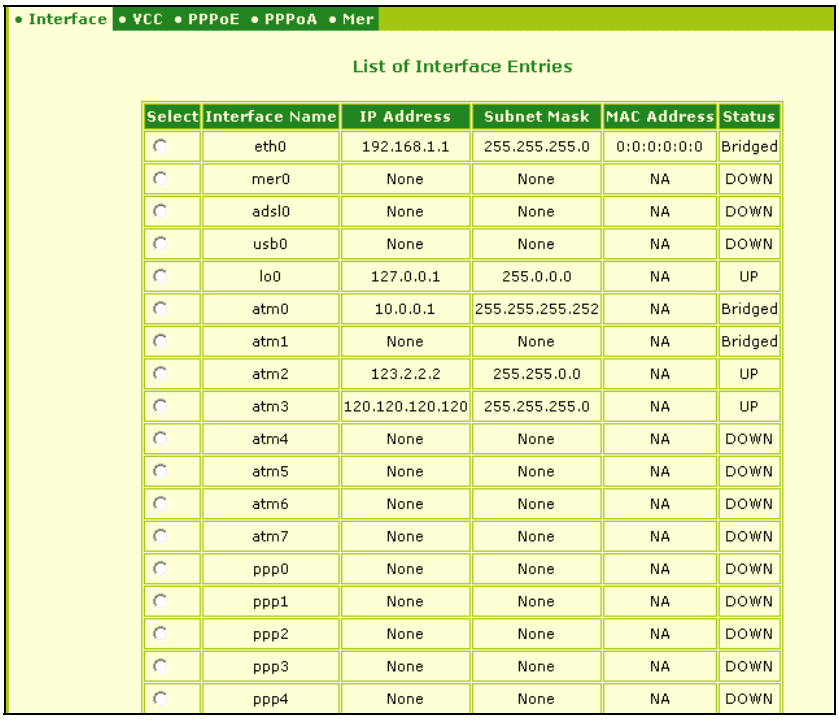
Note: In addition to these definitions, open the applicable port in the Firewall (see *IP Level Filtering*).

5.5. Configure

The Configure menu enables detailed definition of the communication parameters in various sessions. You can see a summary table of all the interface definitions as well as the parameters of each interface separately.

5.5.1. Defining Interface Parameters

The List of Interface Entries table in the Interface tab summarizes the parameters of all the definable interfaces.

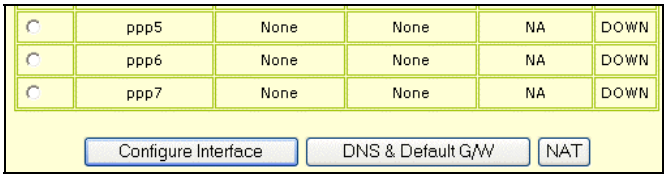


Select	Interface Name	IP Address	Subnet Mask	MAC Address	Status
○	eth0	192.168.1.1	255.255.255.0	0:0:0:0:0:0	Bridged
○	mer0	None	None	NA	DOWN
○	adsl0	None	None	NA	DOWN
○	usb0	None	None	NA	DOWN
○	lo0	127.0.0.1	255.0.0.0	NA	UP
○	atm0	10.0.0.1	255.255.255.252	NA	Bridged
○	atm1	None	None	NA	Bridged
○	atm2	123.2.2.2	255.255.0.0	NA	UP
○	atm3	120.120.120.120	255.255.255.0	NA	UP
○	atm4	None	None	NA	DOWN
○	atm5	None	None	NA	DOWN
○	atm6	None	None	NA	DOWN
○	atm7	None	None	NA	DOWN
○	ppp0	None	None	NA	DOWN
○	ppp1	None	None	NA	DOWN
○	ppp2	None	None	NA	DOWN
○	ppp3	None	None	NA	DOWN
○	ppp4	None	None	NA	DOWN

- eth0 – is the interface towards the LAN.

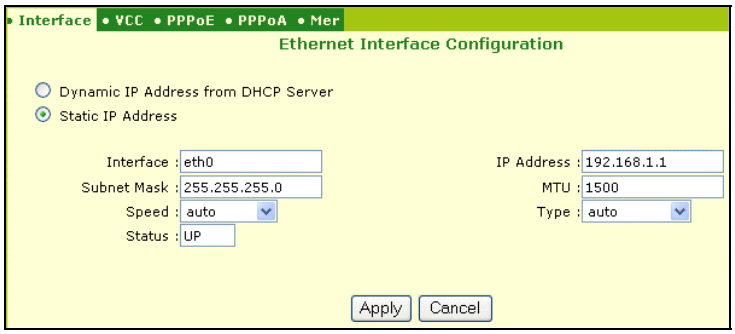
- mer0 – is not applicable.
- adsl0 - is the interface towards the WAN (not definable).
- lo0 – is the loop-back interface (not definable).
- atm0-atm7 - are the interfaces for IOPA networks.
- pppo-ppp7 – are the interfaces for the internal dialer within the router (not definable).

The values presented in the above figure are the default values. At the bottom of the tab there are control buttons that enable operations on the displayed data.



➢ **To configure the eth0 interface:**

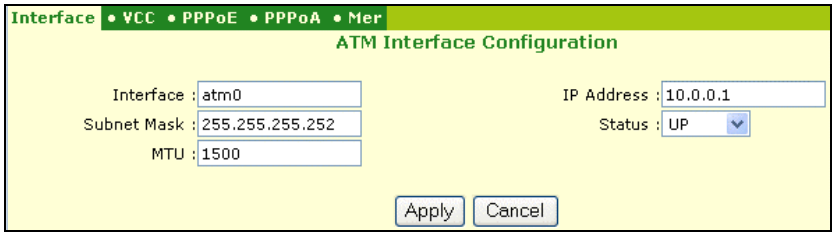
1. Select the radio button on the eth0 line and click **Configure Interface**. The Ethernet Interface Configuration dialog box appears.



2. Select the mode of defining the IP address – static or dynamic – from the DHCP server.
3. If the IP address is set to static mode, defined these parameters:
   - IP address and subnet mask.
   - Maximum size of a package (MTU).
   - Communication rate (auto, 10Mbps, 100Mbps).
   - Communication type (auto, half duplex, full duplex).
4. To activate the interface set the status to UP.
5. Click **Apply**.

➢ **To configure the ATM Interface:**

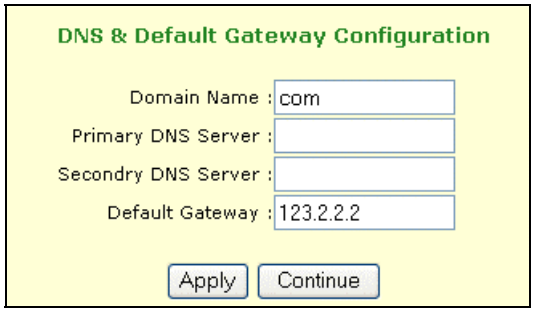
1. Select the radio button on the required line and click **Configure Interface**. The ATM Interface Configuration dialog box appears.



2. Define:
   - IP address and subnet mask.
   - Maximal size of a package (MTU).
3. To activate the interface set the status to UP.
4. Click **Apply.**

➢ **To define DNS and Default Gateway to all interfaces:**

1. Select the radio button on the required line and click **DNS & Default G/W**. The DNS & Default Gateway Configuration dialog box appears.

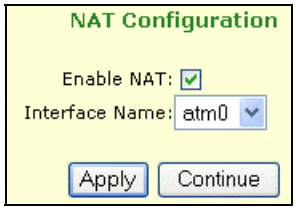


2. Define:
   - Domain name in the WAN.
   - Primary and secondary DNS in the WAN.
   - IP address of the default gateway for accessing the WAN.
3. Click **Apply**.

Note: As a default, the router is defined as the relay of the ISP parameters towards the LAN.

➢ **To define a NAT for the ATM and PPP Interfaces:**

1. Select NAT. The NAT Configuration dialog box appears,

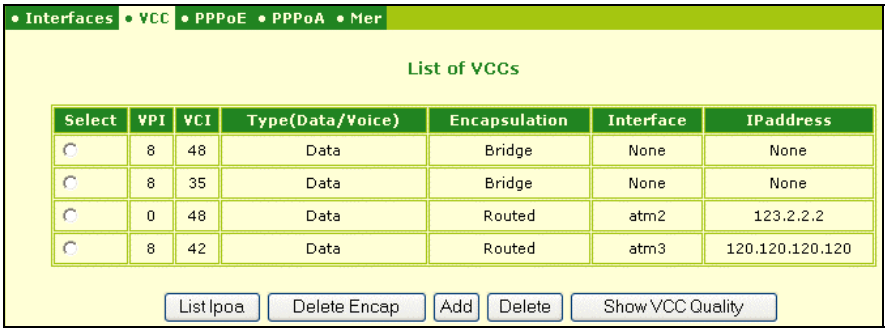


2. Select an interface from the list and check the Enable NAT checkbox.
3. Click **Apply**.

Note: NAT can be enabled only on active interfaces.

5.5.2. Defining Virtual Channels

The VCC tab displays the defined virtual channels.


• Interfaces • VCC • PPPoE • PPPoA • Mer
List of VCCs
Select VPI VCI Type(Data/Voice) Encapsulation Interface IPaddress
8 48 Data Bridge None None
8 35 Data Bridge None None
0 48 Data Routed atm2 123.2.2.2
8 42 Data Routed atm3 120.120.120.120
List Ipoa
Delete Encap
Add
Delete
Show VCC Quality

➢ **To see virtual channels in the IPoA network:**

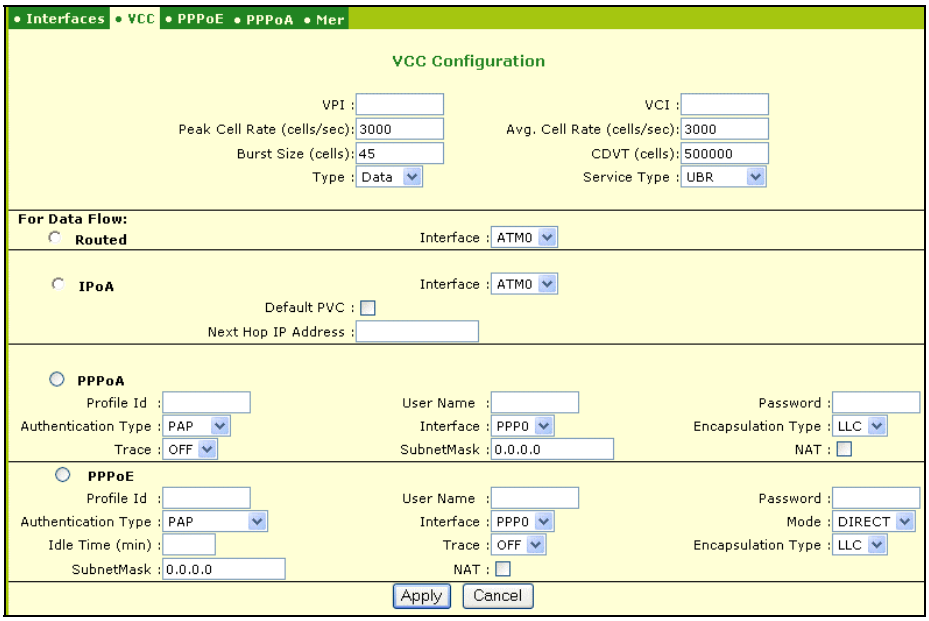
Click **List Ipoa**.

➢ **To Delete the encapsulation in a specific channel:**

Select the required radio button and click **Delete Encap**.

➢ **To add a new Channel:**

1. Click **Add**. The VCC Configuration dialog box appears.

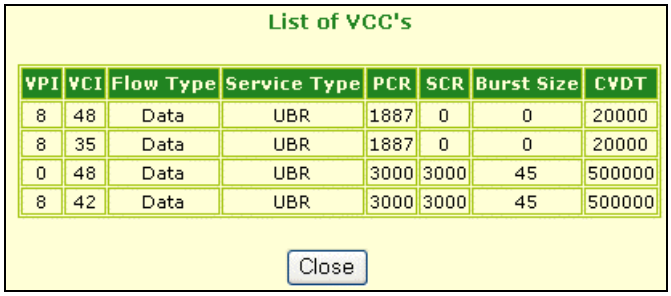


2. This dialog box resembles the WAN Setup dialog box in the Basic Operations menu, yet it enables more detailed definitions. For example: traffic shaping parameters such as Peak Cell Rate, CDVT, traffic type (voice or data) and service type (CBR, UBR, NRTVBR, RTVBR).
3. Select the required protocol and define its parameters.
4. Click **Apply**.

Note: If no radio button is selected, the default is EoA.

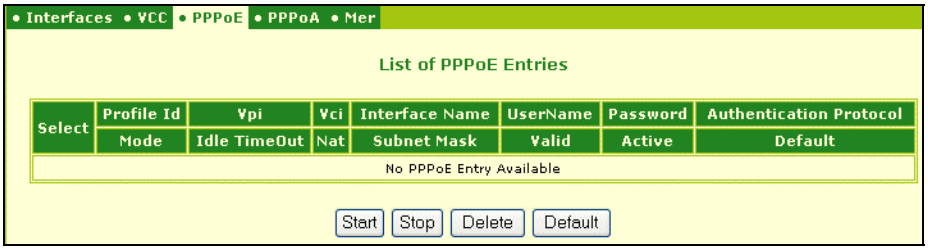
➢ **To view ATM parameters:**

Click **Show VCC Quality**. A list of VCCs and their parameters appears.


List of VCC's
VPI VCI Flow Type Service Type PCR SCR Burst Size CVDT
8 48 Data UBR 1887 0 0 20000
8 35 Data UBR 1887 0 0 20000
0 48 Data UBR 3000 3000 45 500000
8 42 Data UBR 3000 3000 45 500000
Close

5.5.3. Defining PPPoE

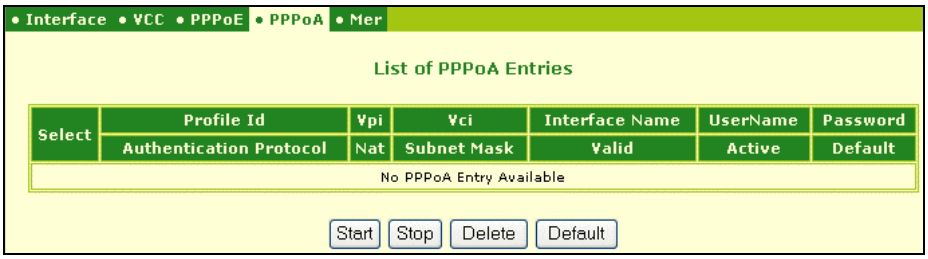
The PPPoE tab displays detailed parameters of the dial-up over Ethernet channels. Note that the table's header consists of two lines, and two lines of data are displayed accordingly for each channel.


• Interfaces • VCC • PPPoE • PPPoA • Mer
List of PPPoE Entries
Select Profile Id Vpi Vci Interface Name UserName Password Authentication Protocol
Mode Idle TimeOut Nat Subnet Mask Valid Active Default
No PPPoE Entry Available
Start Stop Delete Default

A few channels can be defined simultaneously, and then one of them can be selected as a default. Each channel can be started and stopped individually using the Start and Stop buttons. Starting a channel activates dial-up from the router to the public network.

5.5.4. Defining PPPoA

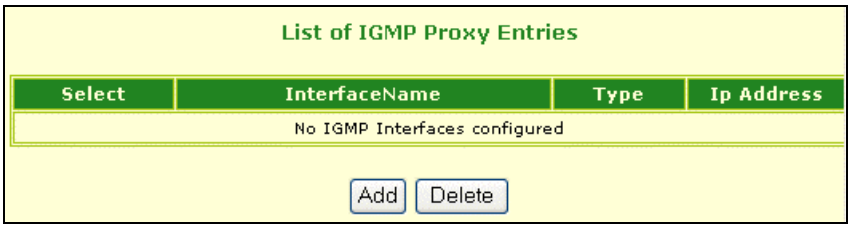
The PPPoA tab displays detailed parameters of the dial-up over ATM channels. Note that the table's header consists of two lines, and two lines of data are displayed accordingly for each channel.


• Interface • VCC • PPPoE • PPPoA • Mer
List of PPPoA Entries
Select Profile Id Vpi Vci Interface Name UserName Password
Authentication Protocol Nat Subnet Mask Valid Active Default
No PPPoA Entry Available
Start Stop Delete Default

A few channels can be defined simultaneously, and then one of them can be selected as a default. Each channel can be started and stopped individually using the Start and Stop buttons. Starting a channel activates dial-up from the router to the public network.

5.6. IGMP Proxy

The IGMP Proxy is used for transferring video and television channels over telephony infrastructure. You can see a summary table of all the interface definitions as well as the parameters of each interface separately.



The IGMP-Proxy is configured on WAN interfaces. The IGMP-Proxy-router is configured on any available LAN interface. The IGMP-Proxy-Router periodically sends a query over all of the interfaces that are configured as IGMP-Proxy-Router interfaces. It does so in order to determine which groups have members on IGMP-Proxy-Router interfaces.

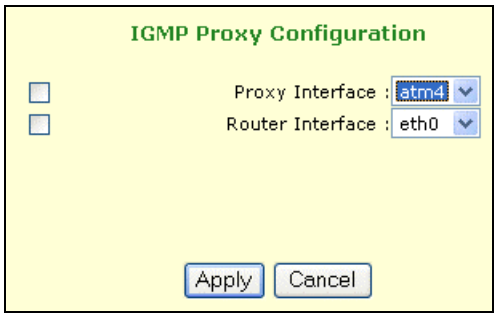
The IGMP-Proxy-Router receives IGMP reports from IGMP hosts and maintains a list of group membership for each IGMP-Proxy-Router interface. If the IGMP-Proxy-Router finds a "new multicast group join," it will send an IGMP join report to the Multicast Router over the IGMP-Proxy interface. When the IGMP-Proxy-Router receives an IGMP leave report, it sends a group-specific query over the IGMP-Proxy-Router interfaces. If it doesn't receive any response to that group-specific query, and the WAN Multicast Router type is Version 2,then the IGMP-Proxy sends a leave report to the WAN Multicast Router over the IGMP-Proxy interface.

After the IGMP-Proxy receives a general query from the WAN Multicast Router, the IGMP-Proxy starts timers for all registered multicast groups. Once timers expire, it will send a group-specific report to the WAN Multicast Router over the IGMP-Proxy interface.

When the IGMP-Proxy receives the IGMP report for a specific group, the IGMP-Proxy stops the timer for that specific group and doesn’t send.an IGMP report for that specific group to the WAN Multicast Router.

➢ **To add a new interface:**

1. Click **Add**. The IGMP Proxy Configuration dialog box appears.



2. Define the proxy interface and the router interface and click **Apply**.

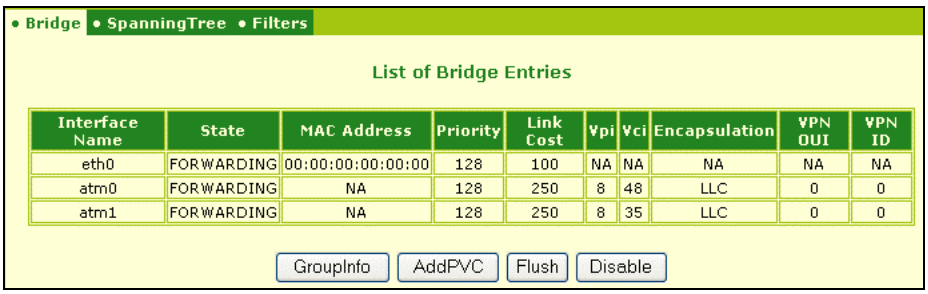
5.7. Bridging

Ethernet frames are bridged over ATM virtual channels (per RFC 1483). The frames are encapsulated either in LLC mode or in Vc Multiplexing mode.

The Bridging menu enables viewing and defining the router's parameters, when operated as a bridge.

5.7.1. Bridge Parameters

The Bridge tab displays the defined bridge parameters.

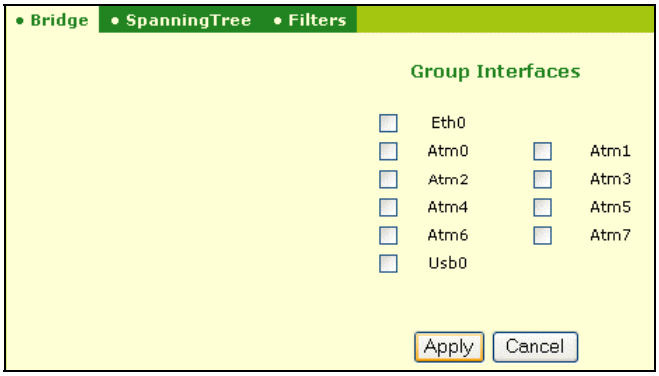


➢ **To delete an existing bridging group:**

Click **Flush**.

➢ **To define a group of interfaces as a bridging group:**

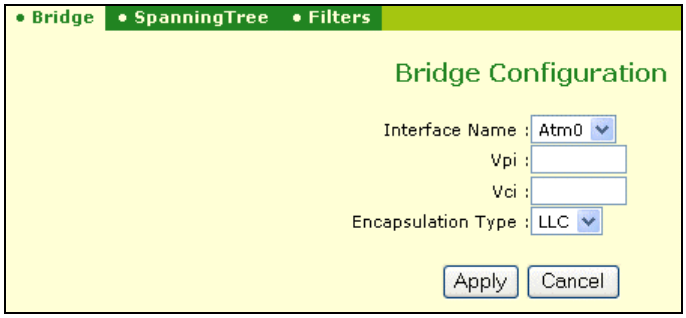
1. Click **GroupInfo**. The Group Interfaces dialog box appears.



2. Check the interfaces you want to include in the group and click **Apply**.

➢ **To define an interface and an encapsulation type to an open PVC:**

1. Click **AddPVC**. The Bridge Configuration dialog box appears.



2. Select an interface from the list. You can only select interfaces that have previously been defined as members of the bridging group.
3. Define virtual channels (Vpi and Vci).
4. Select the type of encapsulation.
5. Click **Apply**.
6. Check that the interface has been added to the list.

➢ **To delete an existing bridging group:**

Click **Flush**.

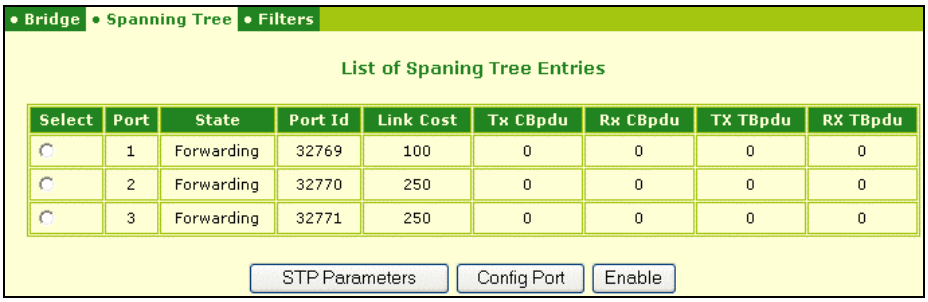
➢ **To activate the defined bridge entries:**

Click **Enable**.

Note: The workflow is as follows: Define an EoA configuration. Click **Flush**. Define a bridging group. Add an interface. Click **Enable**. Finally open the Configure menu and validate that the status of all the interfaces defined within the group is Bridged.

5.7.2. Spanning Tree

The Spanning Tree tab presents the definition of links within the tree: links to bridges in the WAN, the state of transfer, priority and cost.

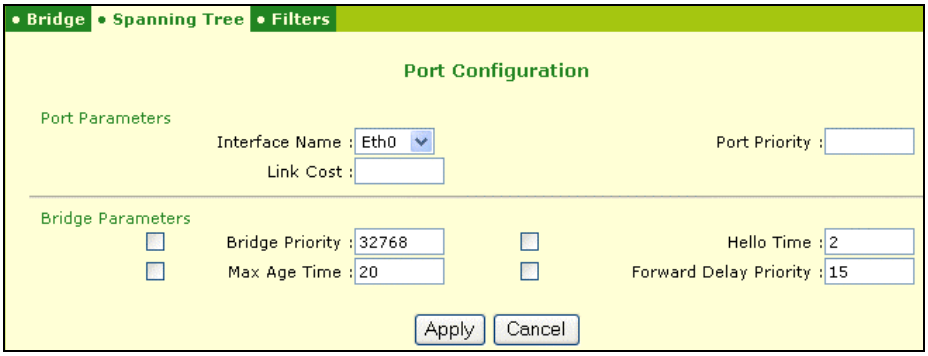


➢ **To see additional parameters:**

Click **STP Parameters**. A list of Spanning Tree parameters appears.

➢ **To modify the values of some parameters:**

1. Click **Config Port**. The Port Configuration dialog box appears.



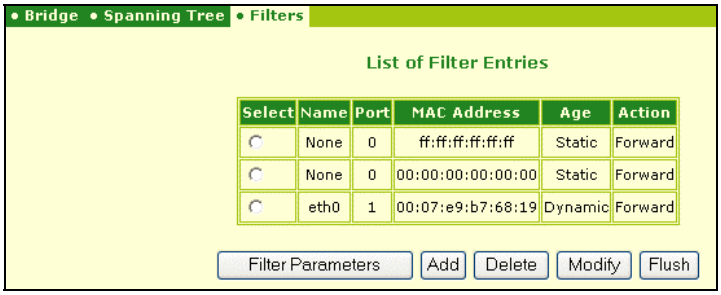
2. Define the required port parameters and click **Apply**.

➢ **To activate the definition**

Click **Enable**.

5.7.3. Defining Filtering

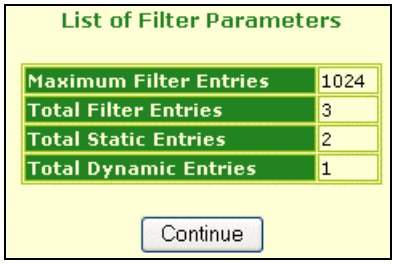
The Filters tab presents the filtering parameters of Ethernet nodes. For every node in the tree (defined by means of a MAC address of a communication unit in the network), you can define the filtering parameter – whether data arriving from this node towards the WAN will be blocked or passed. The default is Dynamic, enabling passage from all nodes via the eth0 interface. If you block the passage from some nodes, the parameter in the Age column is changed to Static.



Note: You cannot modify a line whose Age parameter is Dynamic. You can only add a similar line (referring to the same MAC address) whose age parameter is Static. Both lines are displayed, but the Static line has higher priority.

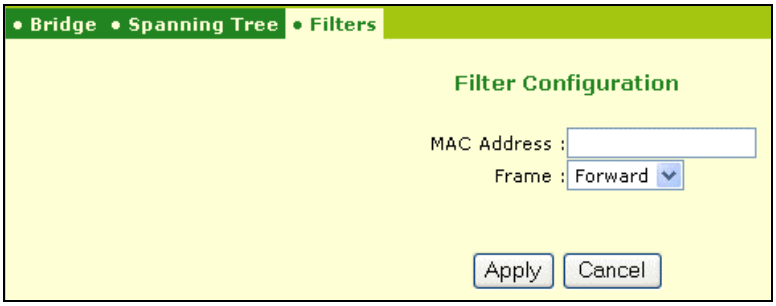
➢ **To view more details:**

Click **Filter Parameters**. The List of Filter Parameters appears.



➢ **To add filtering definitions:**

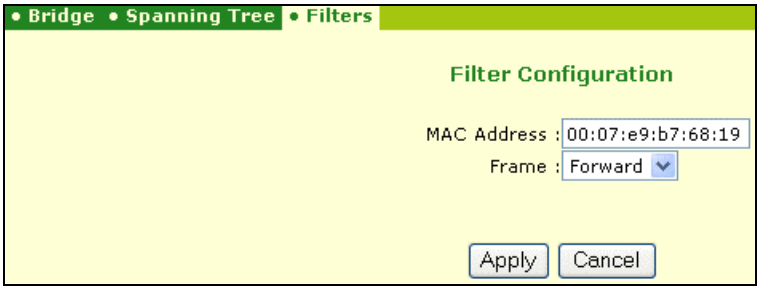
1. Click **Add**. The Filter Configuration dialog box appears.



2. Define the MAC address and Frame (Forward or Block). Click **Apply**.

➢ **To modify filtering definitions:**

1. Use the radio button to select the node you want to modify and click **Modify**. The Filter Configuration dialog box appears.



2. Modify the MAC address and define Frame (Forward or Block). Click **Apply.**

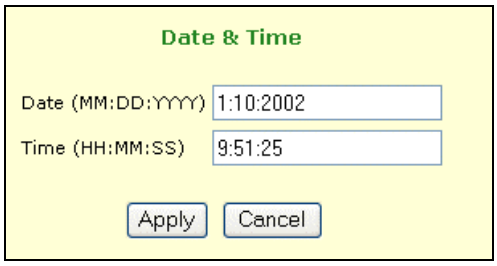
➢ **To delete filtering definitions:**

Use the radio button to select the node you want to delete and click **Delete.**

Note: You cannot delete Dynamic definitions for eth0, which is the default.

5.8. Defining Time and Date

To apply time dependent rules, the router must be synchronized with local timing. For example: firewall blocking rules can change according to business hours. The Time & Date menu enables configuring the router with local parameters.

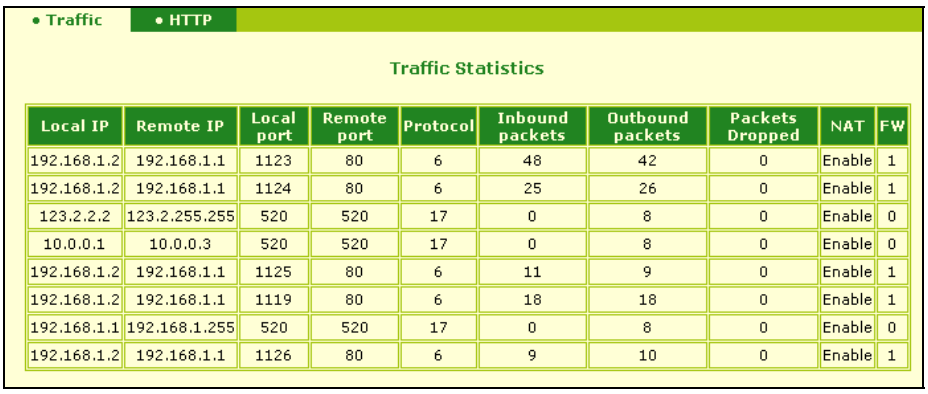


Note: The router's clock advances only when the router is running. Therefore, it is recommended to update this parameter when the router is restarted.

5.9. Firewall Statistics

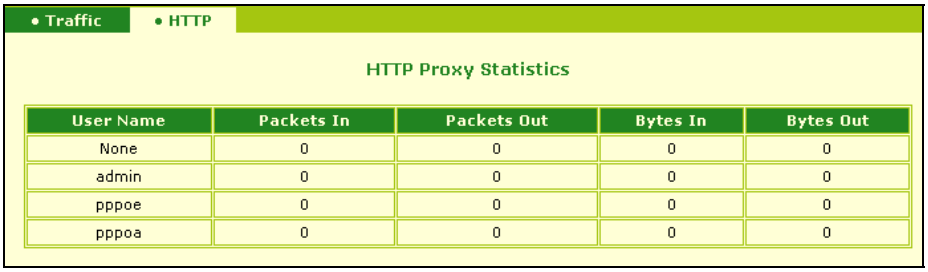
The Firewall Statistics menu presents data for traffic that has passed via the firewall or has been blocked.

The Traffic tab displays statistics for all sessions that have reached the firewall.



Local IP	Remote IP	Local port	Remote port	Protocol	Inbound packets	Outbound packets	Packets Dropped	NAT	FW
192.168.1.2	192.168.1.1	1123	80	6	48	42	0	Enable	1
192.168.1.2	192.168.1.1	1124	80	6	25	26	0	Enable	1
123.2.2.2	123.2.255.255	520	520	17	0	8	0	Enable	0
10.0.0.1	10.0.0.3	520	520	17	0	8	0	Enable	0
192.168.1.2	192.168.1.1	1125	80	6	11	9	0	Enable	1
192.168.1.2	192.168.1.1	1119	80	6	18	18	0	Enable	1
192.168.1.1	192.168.1.255	520	520	17	0	8	0	Enable	0
192.168.1.2	192.168.1.1	1126	80	6	9	10	0	Enable	1

The HTTP tab displays only sessions in the HTTP proxy protocol, sorted by the users that have initiated them.

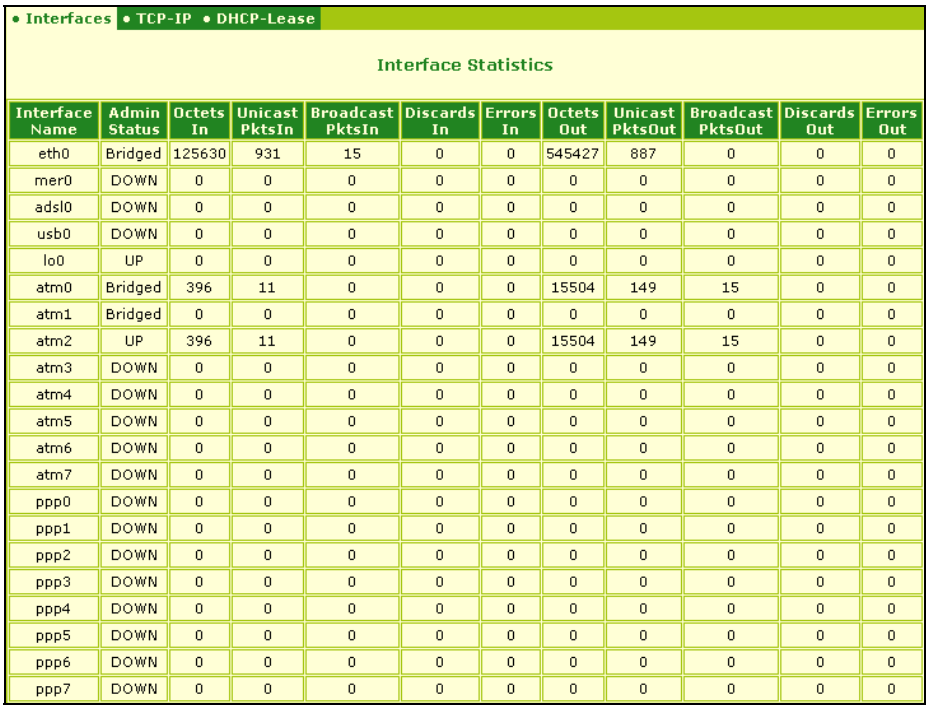


User Name	Packets In	Packets Out	Bytes In	Bytes Out
None	0	0	0	0
admin	0	0	0	0
pppoe	0	0	0	0
pppoa	0	0	0	0

5.10. System Statistics

The System Statistics menu presents general data on the system in which the router operates.

The Interface tab displays general data about all interfaces, their statuses and the traffic that has passed through them.

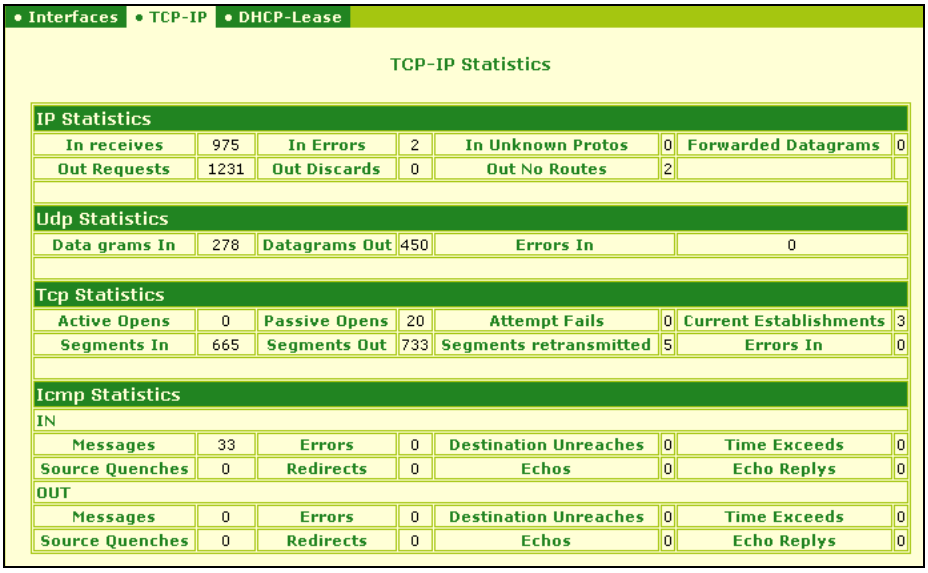


• Interfaces • TCP-IP • DHCP-Lease

Interface Statistics

Interface Name	Admin Status	Octets In	Unicast PktsIn	Broadcast PktsIn	Discards In	Errors In	Octets Out	Unicast PktsOut	Broadcast PktsOut	Discards Out	Errors Out
eth0	Bridged	125630	931	15	0	0	545427	887	0	0	0
mer0	DOWN	0	0	0	0	0	0	0	0	0	0
adsl0	DOWN	0	0	0	0	0	0	0	0	0	0
usb0	DOWN	0	0	0	0	0	0	0	0	0	0
lo0	UP	0	0	0	0	0	0	0	0	0	0
atm0	Bridged	396	11	0	0	0	15504	149	15	0	0
atm1	Bridged	0	0	0	0	0	0	0	0	0	0
atm2	UP	396	11	0	0	0	15504	149	15	0	0
atm3	DOWN	0	0	0	0	0	0	0	0	0	0
atm4	DOWN	0	0	0	0	0	0	0	0	0	0
atm5	DOWN	0	0	0	0	0	0	0	0	0	0
atm6	DOWN	0	0	0	0	0	0	0	0	0	0
atm7	DOWN	0	0	0	0	0	0	0	0	0	0
ppp0	DOWN	0	0	0	0	0	0	0	0	0	0
ppp1	DOWN	0	0	0	0	0	0	0	0	0	0
ppp2	DOWN	0	0	0	0	0	0	0	0	0	0
ppp3	DOWN	0	0	0	0	0	0	0	0	0	0
ppp4	DOWN	0	0	0	0	0	0	0	0	0	0
ppp5	DOWN	0	0	0	0	0	0	0	0	0	0
ppp6	DOWN	0	0	0	0	0	0	0	0	0	0
ppp7	DOWN	0	0	0	0	0	0	0	0	0	0

The TCP/IP tab displays data on the traffic in the IP, UDP, TCP and ICMP protocols.

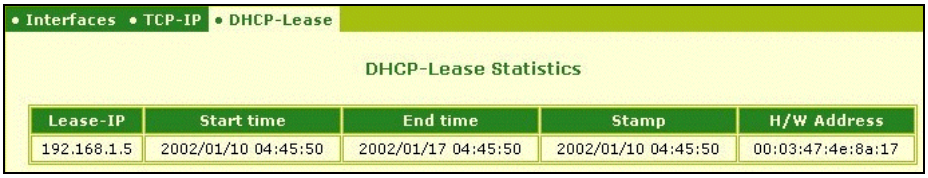


• Interfaces • TCP-IP • DHCP-Lease

TCP-IP Statistics

IP Statistics							
In receives	975	In Errors	2	In Unknown Protos	0	Forwarded Datagrams	0
Out Requests	1231	Out Discards	0	Out No Routes	2		
Udp Statistics							
Data grams In	278	Datagrams Out	450	Errors In		0	
Tcp Statistics							
Active Opens	0	Passive Opens	20	Attempt Fails	0	Current Establishments	3
Segments In	665	Segments Out	733	Segments retransmitted	5	Errors In	0
Icmp Statistics							
IN							
Messages	33	Errors	0	Destination Unreaches	0	Time Exceeds	0
Source Quenches	0	Redirects	0	Echos	0	Echo Replys	0
OUT							
Messages	0	Errors	0	Destination Unreaches	0	Time Exceeds	0
Source Quenches	0	Redirects	0	Echos	0	Echo Replys	0

The DHCP tab displays data concerning IP addresses allocated by the router's DHCP server, the connection and disconnection times and the MAC address of the connected computer.

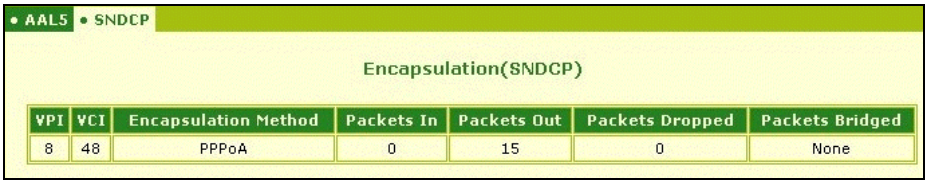


5.11. ATM Statistics

The ATM Statistics tab displays data for traffic in the ATM network.

The AAL5 tab presents traffic data at the AAL5 layer, used to transfer data channels.

The SNDCP tab presents encapsulation data.



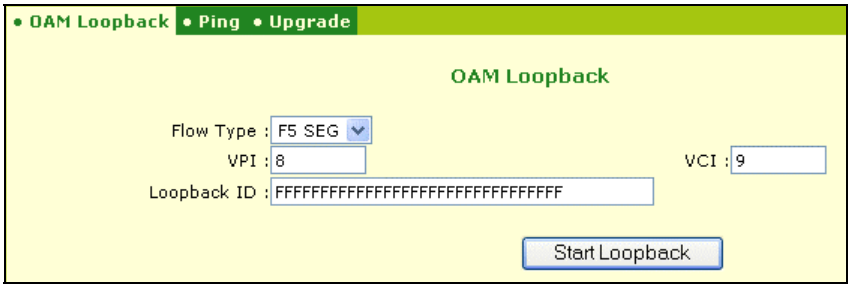
5.12. Support Services

The Diagnostics menu enables support services, including the activation of various levels of fitness tests and updating the router's software version.

5.12.1. Testing ATM Channels

The OAM Loopback tab enables activating a connectivity fitness test by sending data from the router to the WAN, receiving it back and making a comparison. Two test (called Flow) types can be performed:

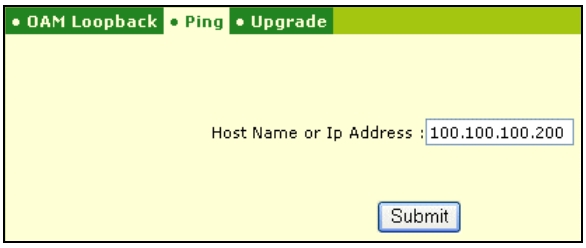
- Sending a standard data package (identified by a specific content identifier) over a virtual ATM channel (F5), end-to-end along the selected channel.
- Sending a standard data package along a segment of the selected channel.



Define the flow type, the tested channel and the loopback content identifier. Click **Start Loopback**.

5.12.2. Testing at IP Level

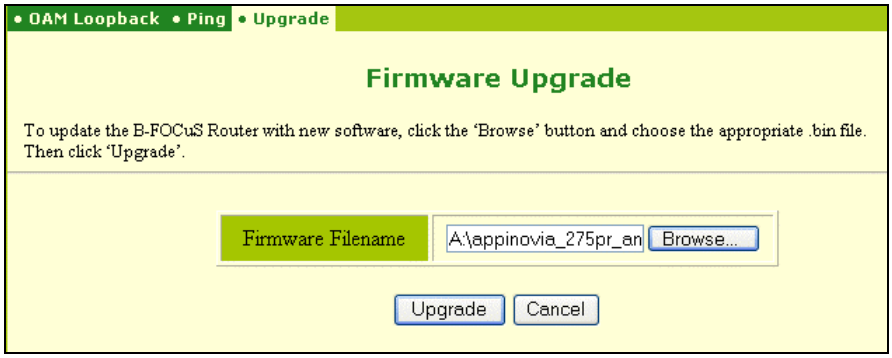
At the IP level, you can check the connectivity to other computers using the Ping command.



Define the destination computer's IP address and click **Submit**.

5.12.3. Updating Software Version

When a new version of the router's software is released, it is sent to you in the form of a file with the extension .bin.



➢ **To load a new software version to the router:**

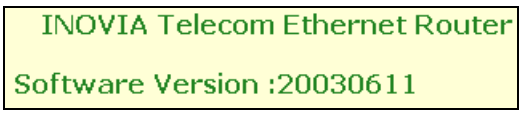
1. Click **Browse**.
2. Locate the new version's *.bin file.
3. Click **Upgrade**.

Very Important: Do not switch the router off during the upgrade process! You must wait until a success message appears. Afterwards, restart the router to apply the new version.

4. This message appears when the upgrade process has been completed.

5.13. Version

The Version menu enables displaying the version currently installed in the router.

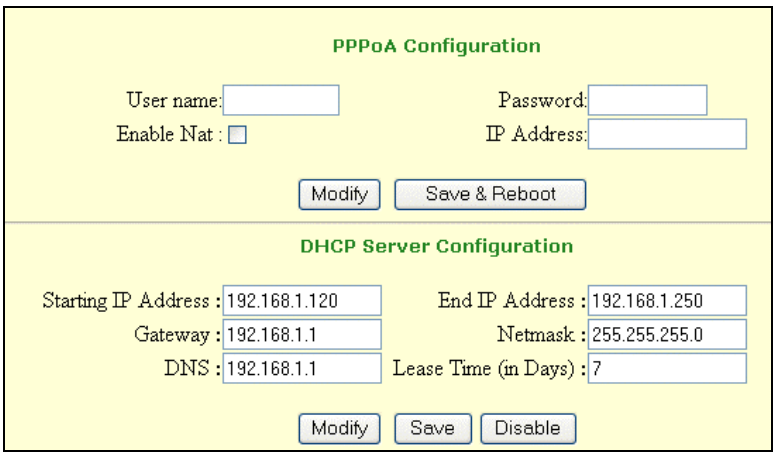


6. Workflows

This section describes typical workflows for using the B-FOCuS 270/400PR User Interface for performing typical operations.

6.1. Changing User Name and Password (only in 400PR)

1. Login as a PPPoA user, using user name: **pppoa** and password: **user**. The PPPoA Configuration dialog box appears.



2. Change the user name to the name received from your ISP. Use the format <user Name>@<domain>. For example: john@ISP.
3. Change the password to the one you have received from your ISP.
4. Check the Enable NAT checkbox.
5. Click **Modify**.
6. From the Basic operations menu, click **Save & Reboot**.

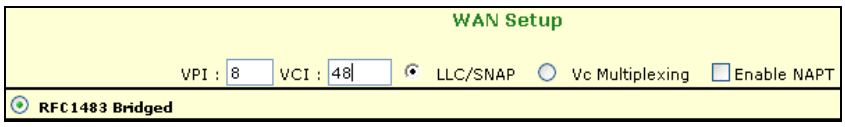
6.2. Defining a Bridge per RFC 1483

You can define a bridge in two ways. The basic workflow is simple, but most of the parameters are defined by default. The advanced workflow enables detailed definition of most parameters.

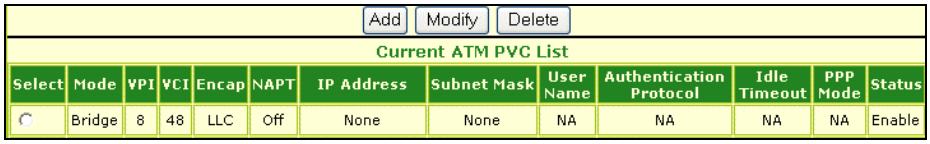
6.2.1. Basic Workflow

➢ **To define a bridge per RFC 1483 in the basic way:**

1. From the Basic operations menu select **WAN Setup**. The WAN Setup dialog box appears.
2. Click the **RFC 1483 Bridged** radio button.
3. In the top line enter the VPI and VCI values and select the **LLC/SNAP** radio button.



4. At the bottom of the dialog box click **Add**.
5. Check that a new line, containing the values you have defined, is added to the table at the bottom of the dialog box.



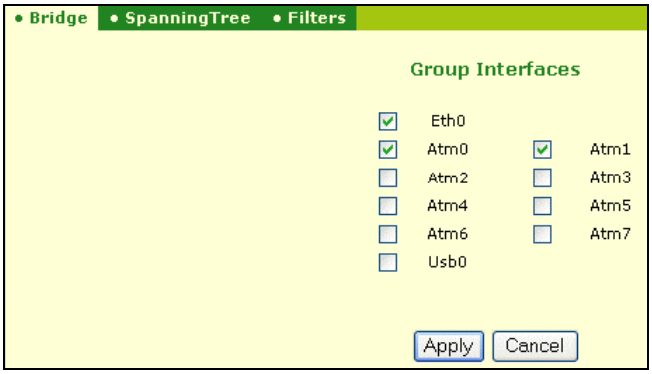
Select	Mode	VPI	VCI	Encap	NAPT	IP Address	Subnet Mask	User Name	Authentication Protocol	Idle Timeout	PPP Mode	Status
○	Bridge	8	48	LLC	Off	None	None	NA	NA	NA	NA	Enable

Note: When defining a bridge in the basic way, all the channels are opened by default under the atm0 interface.

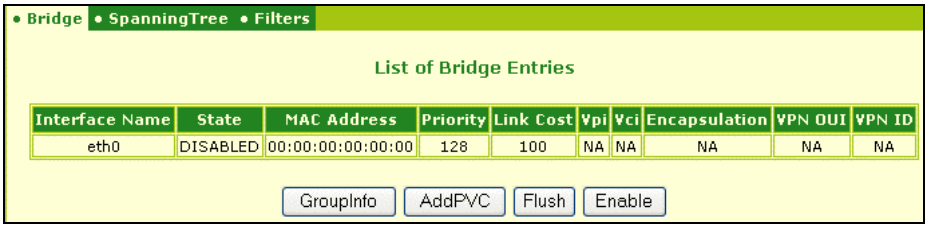
6.2.2. Advanced Workflow

➢ **To define a bridge per RFC 1483 in the advanced way:**

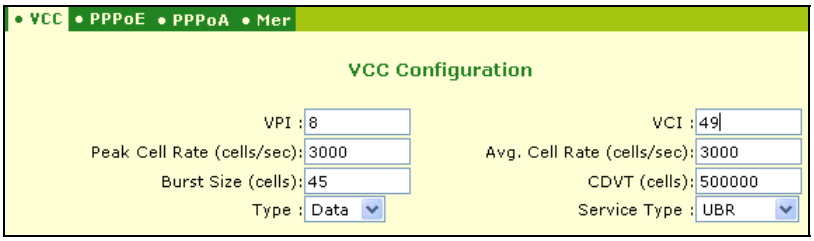
1. You have to assign the interfaces you want to define to the bridging group. From the Advanced operations menu select **Bridging**.
2. Click **Flush**.
3. In the Bridge tab, click **GroupInfo**. The Group Interfaces dialog box appears.



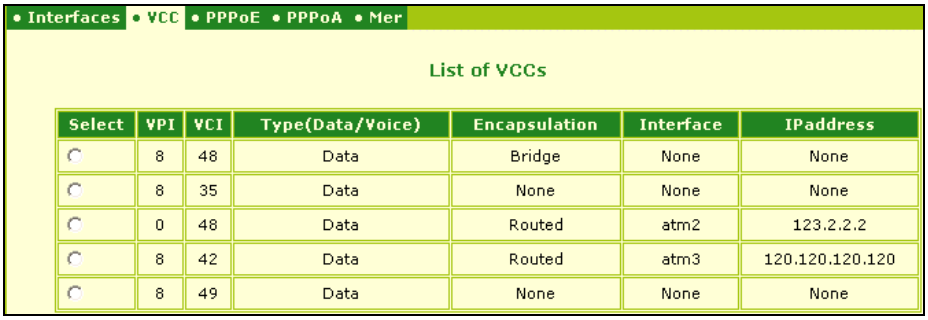
4. Check the interfaces you want to add to the group (in this example: etho, atm0, atm1).
5. Click **Apply**. This line is added to the List of Bridge Entries.



6. To define the bridge, from the Advanced operations menu click **Configure**.
7. In the VCC tab click **Add**. The VCC Configuration dialog box appears. As a default, the bridge definition radio button is selected. Enter the VCI and VPI values. Select the service type. Define the traffic shaping parameters.

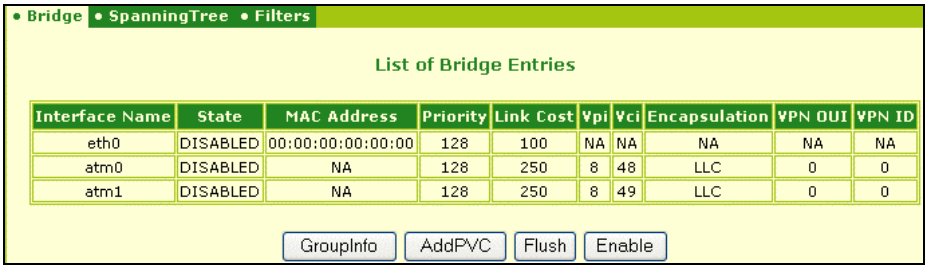


8. Click **Apply**. A line is added to the VCC table.

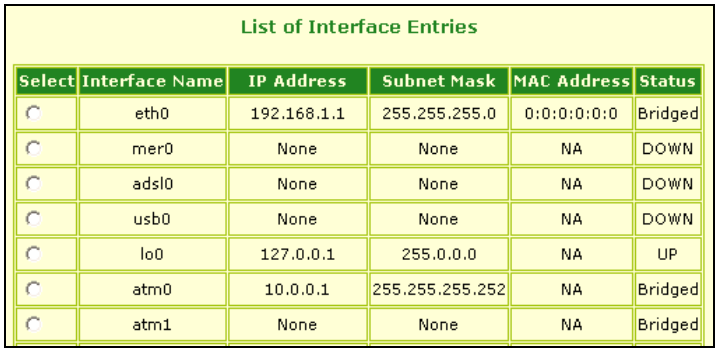

• Interfaces • VCC • PPPoE • PPPoA • Mer
List of VCCs
Select VPI VCI Type(Data/Voice) Encapsulation Interface IPaddress
8 48 Data Bridge None None
8 35 Data None None None
0 48 Data Routed atm2 123.2.2.2
8 42 Data Routed atm3 120.120.120.120
8 49 Data None None None

9. To define the encapsulation, select **Bridging** from the Advanced menu and click **Add PVC**. The Bridge Configuration dialog box appears.

10. Select one of the atm interfaces (in this example, atm1). Enter the VCI and VPI values and select the type of encapsulation.
11. Click **Apply**. The values you have defined appear in the atm line (in this example, atm1).


• Bridge • SpanningTree • Filters
List of Bridge Entries
Interface Name State MAC Address Priority Link Cost Vpi Vci Encapsulation VPN OUI VPN ID
eth0 DISABLED 00:00:00:00:00:00 128 100 NA NA NA NA NA
atm0 DISABLED NA 128 250 8 48 LLC 0 0
atm1 DISABLED NA 128 250 8 49 LLC 0 0
GroupInfo AddPVC Flush Enable

12. To activate the bridge, click **Enable**.
13. From the Advanced menu select **Configure**. Check that the status of all the group members (eth0, atm0, atm1) is Bridged.


List of Interface Entries
Select Interface Name IP Address Subnet Mask MAC Address Status
eth0 192.168.1.1 255.255.255.0 0:0:0:0:0:0 Bridged
mer0 None None NA DOWN
adsl0 None None NA DOWN
usb0 None None NA DOWN
lo0 127.0.0.1 255.0.0.0 NA UP
atm0 10.0.0.1 255.255.255.252 NA Bridged
atm1 None None NA Bridged

14. From the Advanced menu select **VCC**. Check that all the values you have defined are displayed.

List of VCC's

VPI	VCI	Flow Type	Service Type	PCR	SCR	Burst Size	CVDT
8	48	Data	UBR	3000	3000	45	500000
8	35	Data	UBR	1887	0	0	20000
0	48	Data	UBR	3000	3000	45	500000
8	42	Data	UBR	3000	3000	45	500000
8	49	Data	UBR	3000	3000	45	500000

Close

6.3. Defining a Routed IPoA per RFC 1483

You can define a router in two ways. The basic workflow is simple, but most of the parameters are defined by default. The advanced workflow enables detailed definition of most parameters.

6.3.1. Basic Workflow

➢ **To define a routed IPoA per RFC 1483 using the basic method:**

1. From the Basic operations menu select **WAN Setup**. The WAN Setup dialog box appears.
2. Click the **RFC 1483 Routed** radio button. Define VPI, VCI, encapsulation type (LLC/SNAP) and check Enable NAPT. Define a WAN IP address and subnet mask.

WAN Setup

VPI : 0 VCI : 48 LLC/SNAP Vc Multiplexing Enable NAPT

RFC1483 Bridged

RFC1483 Routed

WAN IP address: 10.0.0.5 WAN subnet mask: 255.0.0.0

3. At the bottom of the dialog box click **Add**. Check that a line is added to the table containing the values you have defined.

Current ATM PVC List

Select	Mode	VPI	VCI	Encap	NAPT	IP Address	Subnet Mask	User Name	Authentication Protocol	Idle Timeout	PPP Mode	Status
	Bridge	8	48	LLC	Off	None	None	NA	NA	NA	NA	Enable
	None	8	35	None	Off	None	None	NA	NA	NA	NA	NA
	Routed	0	48	LLC	On	10.0.0.5	255.0.0.0	NA	NA	NA	NA	NA

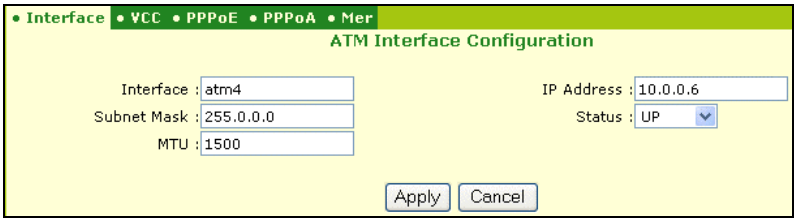
6.3.2. Advanced Workflow

➢ **To define a routed IPoA per RFC 1483 using the advanced method:**

1. From the Advanced menu click **Configure**. Select the radio button in a line with an available ATM interface (in this example: atm4).

	atm2	10.0.0.5	255.0.0.0	NA	UP
	atm3	120.120.120.120	255.255.255.0	NA	UP
	atm4	None	None	NA	DOWN

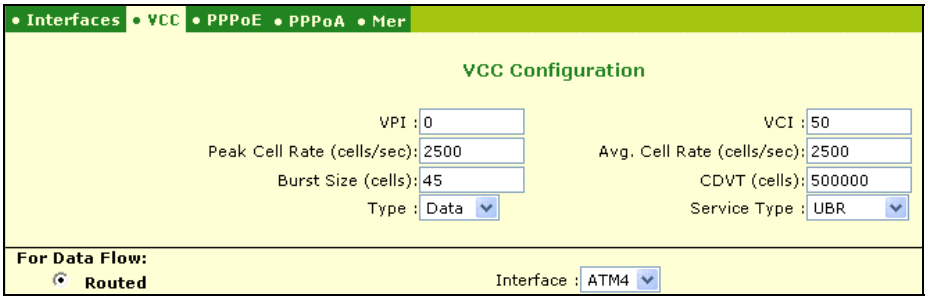
2. At the bottom of the dialog box click **Configure Interface**. The ATM Interface Configuration dialog box appears.



3. Define the selected interface, the IP address and subnet mask in the WAN, and the MTU value. Set the status to UP. Click **Apply**.
4. Check that the newly defined interface appears in the table in the Interface tab and that its status is UP.

○	atm4	10.0.0.6	255.0.0.0	NA	UP

5. Select the VCC tab and click **Add**. The VCC Configure dialog box appears.

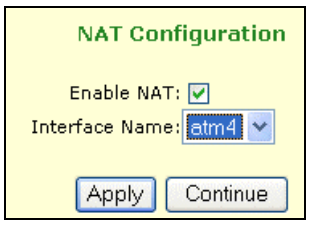


6. Click the **Routed** radio button. Select the interface you want to define (atm4) from the list. Define VPI, VCI and all other parameters.
7. Click **Apply**. A new line is added to the VCC table.

List of VCCs

Select	VPI	VCI	Type(Data/Voice)	Encapsulation	Interface	IPaddress
○	8	48	Data	Bridge	None	None
○	8	35	Data	None	None	None
○	0	48	Data	Routed	atm2	10.0.0.5
○	8	42	Data	Routed	atm3	120.120.120.120
○	8	49	Data	Bridge	None	None
○	0	50	Data	Routed	atm4	10.0.0.6

8. To define NAT, return to the Interface tab and click **NAT**. The NAT Configuration dialog box appears.



9. Check **Enable NAT** and select the Interface you want to define (atm4). Click **Apply** and then click **Continue**.
10. In the VCC tab, click Show **VCC Quality**. A list of VCCs appears. Check that it contains the values you have defined.

List of VCC's

VPI	VCI	Flow Type	Service Type	PCR	SCR	Burst Size	CVDT
8	48	Data	UBR	3000	3000	45	500000
8	35	Data	UBR	1887	0	0	20000
0	48	Data	UBR	3000	3000	45	500000
8	42	Data	UBR	3000	3000	45	500000
8	49	Data	UBR	3000	3000	45	500000
0	50	Data	UBR	2500	2500	45	500000

11. From the Basic menu select **WAN Setup**. Check that the channel you have defined appears in Router mode and that NAPT is in the On state.

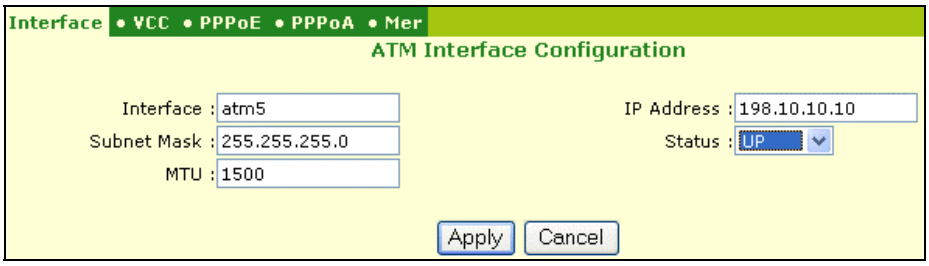
○	Routed	0	50	LLC	On	10.0.0.6	255.0.0.0	NA	NA	NA	NA	NA

6.4. Defining Classical IPoA per RFC 1577

Classical IPoA per RFC 1577 can only be done using the Advanced method.

➢ **To define Classical IPoA:**

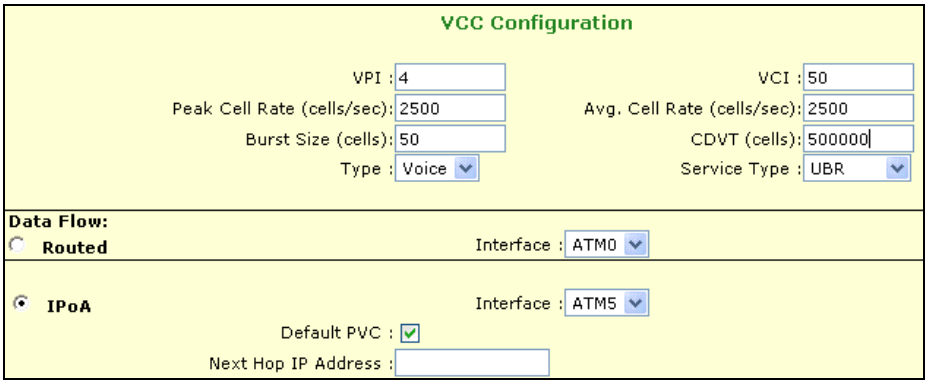
1. From the Advanced menu select **Configure**.
2. From the list of interfaces select an available ATM interface (in this example atm5) and click **Configure Interface**. The ATM Interface Configuration dialog box appears.



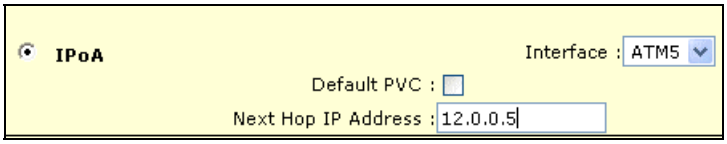
3. Define the name of the interface, the IP address and subnet mask in the WAN and the MTU value. Change the status to UP.
4. Click **Apply**. Check that the definitions appear in the list of interfaces.

	atm5	198.10.10.10	255.255.255.0	NA	UP

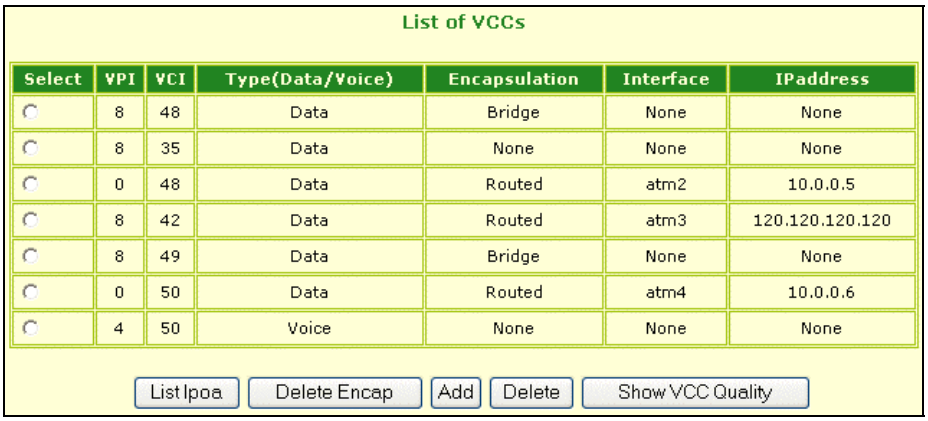
5. In the VCC tab click **Add**.
6. Define the VCC parameters.
7. Select the **IPoA** radio button. Select the **ATM5** interface.



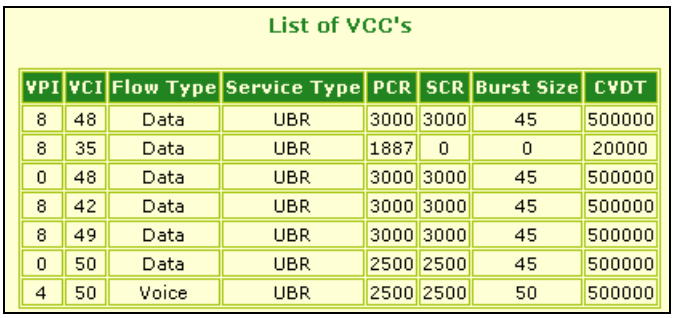
8. There are two options:
   - If you check the Default PVC checkbox, you should define specific VC and VP and the traffic shaping parameters.
   - If you uncheck the Default PVC checkbox, define the next hop IP address – an address in the WAN from which the routing continues.



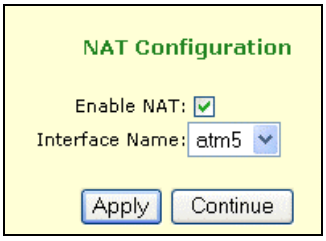
9. In both cases click **Apply**. Check that the newly defined interface appears in the VCC list.


List of VCCs
Select VPI VCI Type(Data/Voice) Encapsulation Interface IPaddress
8 48 Data Bridge None None
8 35 Data None None None
0 48 Data Routed atm2 10.0.0.5
8 42 Data Routed atm3 120.120.120.120
8 49 Data Bridge None None
0 50 Data Routed atm4 10.0.0.6
4 50 Voice None None None
List Ipoa
Delete Encap
Add
Delete
Show VCC Quality

10. Click **Show VCC Quality** and validate that the traffic shaping parameters appear as you have defined them.



11. Click **Close** to close the pop-up window.
12. To activate NAT, select the Interface tab and click **NAT**. The NAT Configuration dialog box appears.



13. Select the interface (atm5). Check the **Enable NAT** checkbox. Click **Apply** and then click **Continue**.
14. Check that the interface you have defined appears in the WAN Setup table with NAPT in the On state.

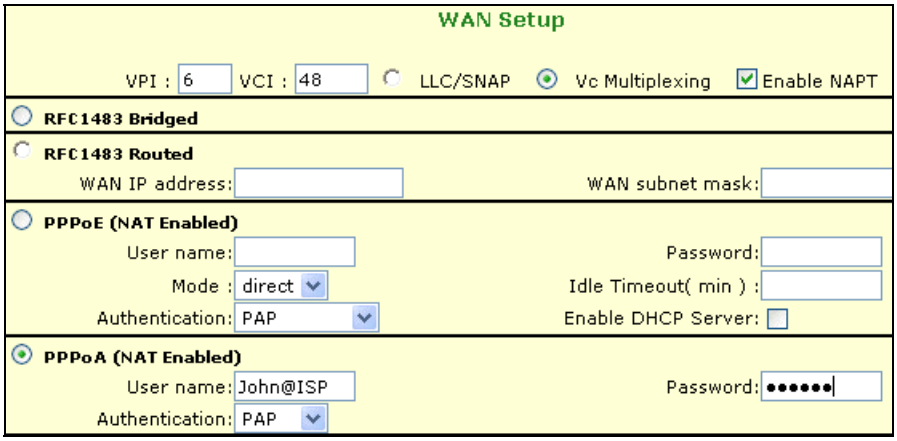
6.5. Defining PPP Over ATM

You can define PPP over ATM in two ways. The basic workflow is simple, but most of the parameters are defined by default. The advanced workflow enables detailed definition of most parameters.

6.5.1. Basic Workflow

➢ **To define PPP over ATM using the basic method:**

1. From the Basic operations menu select **WAN Setup**. The WAN Setup dialog box appears.
2. Click the **PPPoA** radio button. Define VPI, VCI and encapsulation type. Note that Enable NAPT is checked by default. Define user name (<name>@<domain>) and password, as received from your ISP and select the PAP authentication protocol.



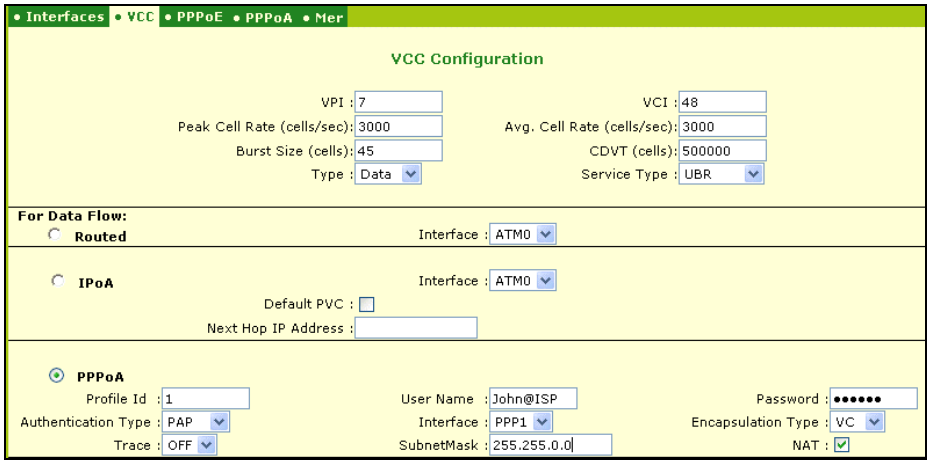
3. Click **Add**. Check that a line is added to the table at the bottom of the dialog box. Note that although NAPT is enabled, it appears in the table in the Off state. The state will be changed to On when the router is actually connected to the ISP (after dialing).

6.5.2. Basic Workflow

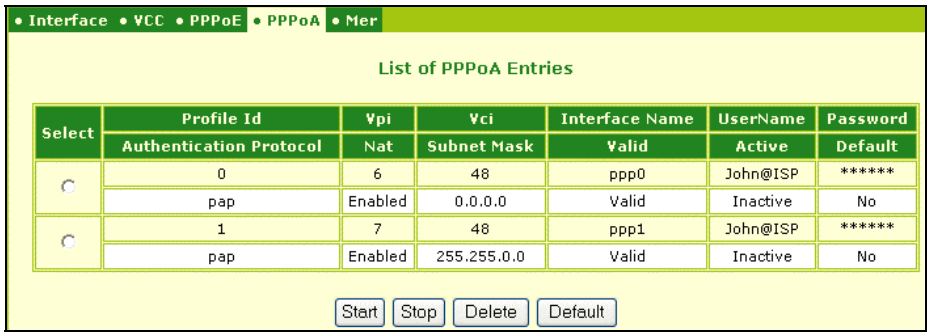
➢ **To define PPP over ATM using the advanced method:**

1. From the Advanced operations menu select **WAN Configure.**
2. In the VCC tab click **Add**. The VCC Configuration dialog box appears.
3. Select the **PPPoA** radio button. Define: VPI, VCI, Profile ID, user name (<name>@<domain>) and password, authentication protocol (PAP), a ppp interface, encapsulation type (VC), subnet mask and trace. Enable NAT.

Note: You can define a few Profile IDs, but only one of them is active. This means that you can define a few users on the same interface, but when one of them is connected to the ISP, the others cannot be connected.



4. Click **Apply**. Check that a line is added in the VCC tab.
5. Select the PPPoA tab and check that the interfaces you have defined are displayed.



6. Note that the interface you have defined in the Basic menu appears in ppp0 (the first available ppp interface, before the one you have defined in the Advanced menu is selected by default). It has been assigned by default Profile ID 0. The interface you have defined in the Advanced menu appears with the values you have just defined.
7. If you have defined a few channels, you must identify one of them as the default channel. Click one of the radio buttons and click **Default**. The selected interface's Default parameter becomes Yes.

List of PPPoA Entries

Select	Profile Id	Vpi	Vci	Interface Name	UserName	Password
	Authentication Protocol	Nat	Subnet Mask	Valid	Active	Default
○	0	6	48	ppp0	John@ISP	******
	pap	Enabled	0.0.0.0	Valid	Inactive	No
○	1	7	48	ppp1	John@ISP	******
	pap	Enabled	255.255.0.0	Valid	Inactive	Yes

Start Stop Delete Default

8. Check that the interface you have defined appears in the VCC list.

○	7	48	Data	None	None	None

Note: After connection to the WAN, you will be able to see the IP address allocated by the ISP (either in the WAN Setup menu or when you login as a PPPoA user).

9. Click **Show VCC Quality** and check that the traffic shaping parameters appear as you have defined them.

6.6. Defining PPP Over Ethernet

You can define PPP over Ethernet in two ways. The basic workflow is simple, but most of the parameters are defined by default. The advanced workflow enables detailed definition of most parameters.

6.6.1. Basic Workflow

➢ **To define PPP over Ethernet using the basic method:**

1. From the Basic operations menu select **WAN Setup**. The WAN Setup dialog box appears.
2. Click the **PPPoE** radio button. Define VPI, VCI and encapsulation type (LLC). Note that Enable NAPT and Enable DHCP Server are checked by default. Define user name (<name>@<domain>) and password, as received from your ISP and select the PAP authentication protocol. Define the Mode; select **Direct** if the session is always connected; select **Auto** and define idle time if the session is disconnected when there is no traffic.

WAN Setup

VPI : 8 VCI : 35 ◉ LLC/SNAP ○ Vc Multiplexing ☑ Enable NAPT

○ **RFC1483 Bridged**

○ **RFC1483 Routed**

WAN IP address: WAN subnet mask:

◉ **PPPoE (NAT Enabled)**

User name: Jill@ISP Password: ••••••

Mode : auto Idle Timeout(min) : 8

Authentication: PAP Enable DHCP Server: ☑

3. Click **Add**. Check that a line is added to the table. Note that although NAPT is enabled, it appears in the table in the Off state. The state will be changed to On when the router is actually connected to the ISP (after dialing).

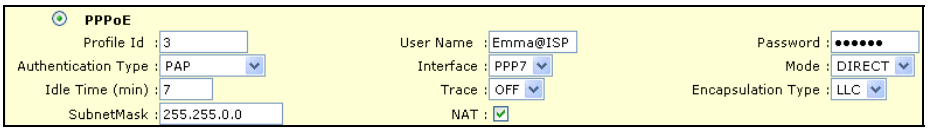
○	PPPoE	8	35	LLC	Off	None	None	Jill@ISP	Pap	8	auto	Inactive

6.6.2. Advanced Workflow

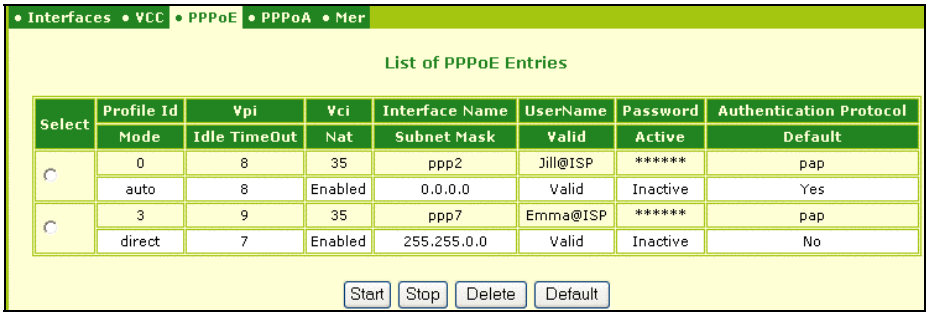
➢ **To define PPP over Ethernet using the advanced method:**

1. From the Advanced operations menu select **Configure**.
2. In the VCC tab click **Add**. The VCC Configuration dialog box appears.
3. Select the **PPPoE** radio button. Define: VPI, VCI, Profile ID, user name (<name>@<domain>) and password, authentication protocol, a ppp interface, mode of operation (Direct or Auto and idle time), encapsulation type (LLC), subnet mask and trace. Enable NAT.

Note: You can define a few Profile IDs, but only one of them is active. This means that you can define a few users on the same interface, but when one of them is connected to the ISP, the others cannot be connected.



4. Click **Apply**. Check that a line is added at the VCC tab.
5. Select the PPPoE tab and validate that the interfaces you have defined are displayed.



6. Note that the interface you have defined in the Basic menu appears in ppp2 (the first available ppp interface, before the one you have defined in the Advanced menu is selected by default). It has been assigned by default Profile ID 0. The interface you have defined in the Advanced menu appears with the values you have defined.
7. If you have defined a few channels, you must identify one of them as the default channel. Click one of the radio buttons and click **Default**. The selected interface's Default parameter becomes Yes.

Note: Only an interface defined in the Auto mode can be selected as a default.

8. Check that the interface you have defined appears in the VGCC list.

Note: After connection to the WAN, you will be able to see the IP address allocated by the ISP (either in the WAN Setup menu or when you login as a PPPoA user).

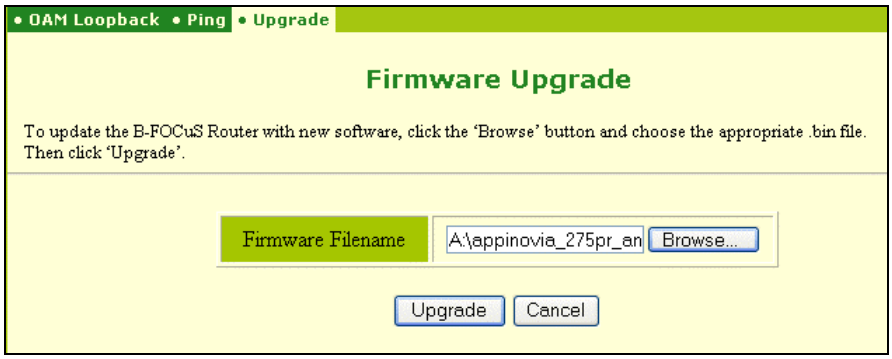
9. Click **Show VCC Quality** and check that the traffic shaping parameters appear as you have defined them.

6.7. Updating Software Version

➢ **To load a new software version:**

1. From the Advanced menu select **Diagnostics** and click the **Upgrade** tab.
2. Click **Browse**.
3. Locate the new version's *.bin file.
4. Click **Upgrade**.

Very Important: Do not switch the router off during the upgrade process! You must wait until a success message appears. Afterwards, restart the router to apply the new version.


• OAM Loopback • Ping • Upgrade
Firmware Upgrade
To update the B-FOCuS Router with new software, click the 'Browse' button and choose the appropriate .bin file. Then click 'Upgrade'.
Firmware Filename
A:\appinovia_275pr_an
Browse...
Upgrade
Cancel

5. This message appears when the upgrade process has been completed.

7. Troubleshooting

This section describes possible problems arising when the router is used, and suggests possible solutions.

7.1. Defining User Name and Password (Only in 400PR)

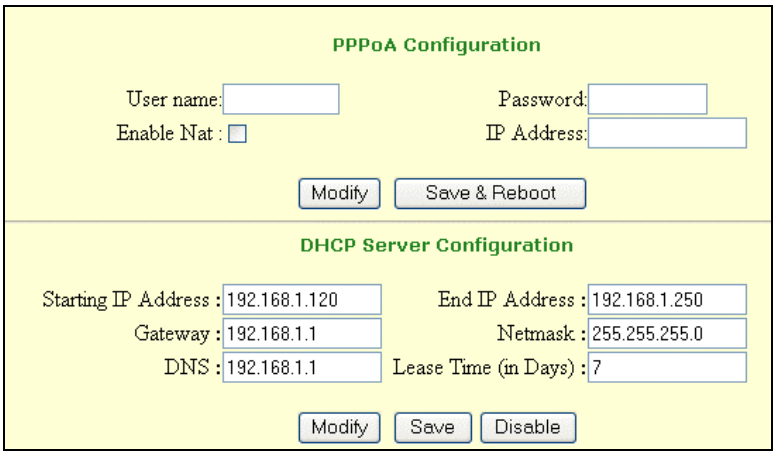
Phenomenon:
You cannot dial up to the WAN.

Possible solution:

The defined user name and/or password are incorrect.

➢ **To solve the problem:**

1. Login as a pppoa user. Use the default user name: **pppoa** and the default password: **user**. The PPPoA Configuration dialog box appears.



2. Change the user name to the one you received from your ISP. Use the format <user name>@<domain>.
3. Check the **Enable NAT** checkbox.
4. Click **Modify**.
5. Click **Save & Reboot**.

7.2. Proper Version Upgrading

Phenomenon:
You cannot access the Configuration definition graphical user interface (GUI). When defining the address 192.168.1.1, an error message appears.

Possible solution:

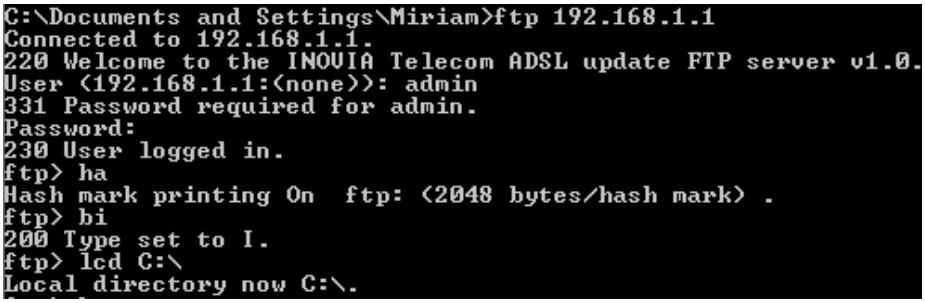
The new version has not been installed properly. There might have been a power failure during the upgrade, or the new file was faulty or wrong. In this case, the router uses a basic software version (called Recovery), which is always burned in its flash memory. This version is not supported by the GUI and must be accessed using other tools.

- **To solve the problem:**

1. Check that there is no communication problem between the computer and the router. Open a command line (Start > Run > cmd) and type: **ping 192.168.1.1**. If the communication fails, there might be a hardware problem, either in the router or in the connecting cable. If the communication is fit, continue to the next step.
2. Communicate with the router using the Telnet protocol. In the command line type: **telnet 192.168.1.1**. A login prompt appears.
3. Type **admin**. The word Password appears.
4. Type the password received from your ISP.
5. Type **version**. The name of the file in the flash memory appears. If the name is Recovery, this is the basic version. Continue to the next step for loading the upgrade version. If the name of the upgrade file appears (like in the shown example), this is not the case. Try restarting the router.

```
login: admin
Password:
]admin @ home]$ version
INOVIA TELECOM ETHERNET ROUTER20030630
]admin @ home$[
```

6. To load an updated version when the GUI is not available, use FTP. Before you begin, copy the updated version to the computer's C:\ directory. Open a command line and type: **ftp 192.168.1.1**. A message appears: User (192.168.1.1 (none)).
7. Type **admin**. The word Password appears.
8. Type the password you have received from the ISP. A message appears: User logged in.
9. Type **ha**. A message appears: Hash mark printing On.
10. Type **bi**. A message appears: Type set to I.
11. Type **lcd C:\.** A message appears: Local directory now C:\.
12. Type: **put <file name.bin> app2**, where "file name.bin" is the name of the updated version file. The version file is being loaded. At the end of the process, a message appears: Transfer Complete.
13. To exit type: **bye**.


C:\Documents and Settings\Miriam>ftp 192.168.1.1
Connected to 192.168.1.1.
220 Welcome to the INOVIA Telecom ADSL update FTP server v1.0.
User (192.168.1.1:(none)): admin
331 Password required for admin.
Password:
230 User logged in.
ftp> ha
Hash mark printing On ftp: (2048 bytes/hash mark) .
ftp> bi
200 Type set to I.
ftp> lcd C:\
Local directory now C:\.

14. Switch the router's power off. Wait for 5 seconds and switch it on. Try to access the Configuration GUI via the browser.
15. Use the Version option in the Advanced menu to check that the proper version is installed.

7.3. Hardware Reset

In case you need to return to the default configurations and you cannot access the router via the configuration GUI, perform hardware reset.

Note: Hardware reset should be performed only in necessary cases.

➢ **To perform hardware reset:**

1. Disconnect the ADSL cable from the router.
2. Press the Reset pushbutton on the back side of the router until the ADSL LED is illuminated.
3. Wait until the router restarts.
4. Reconnect the ADSL cable to the router.

8. Specifications

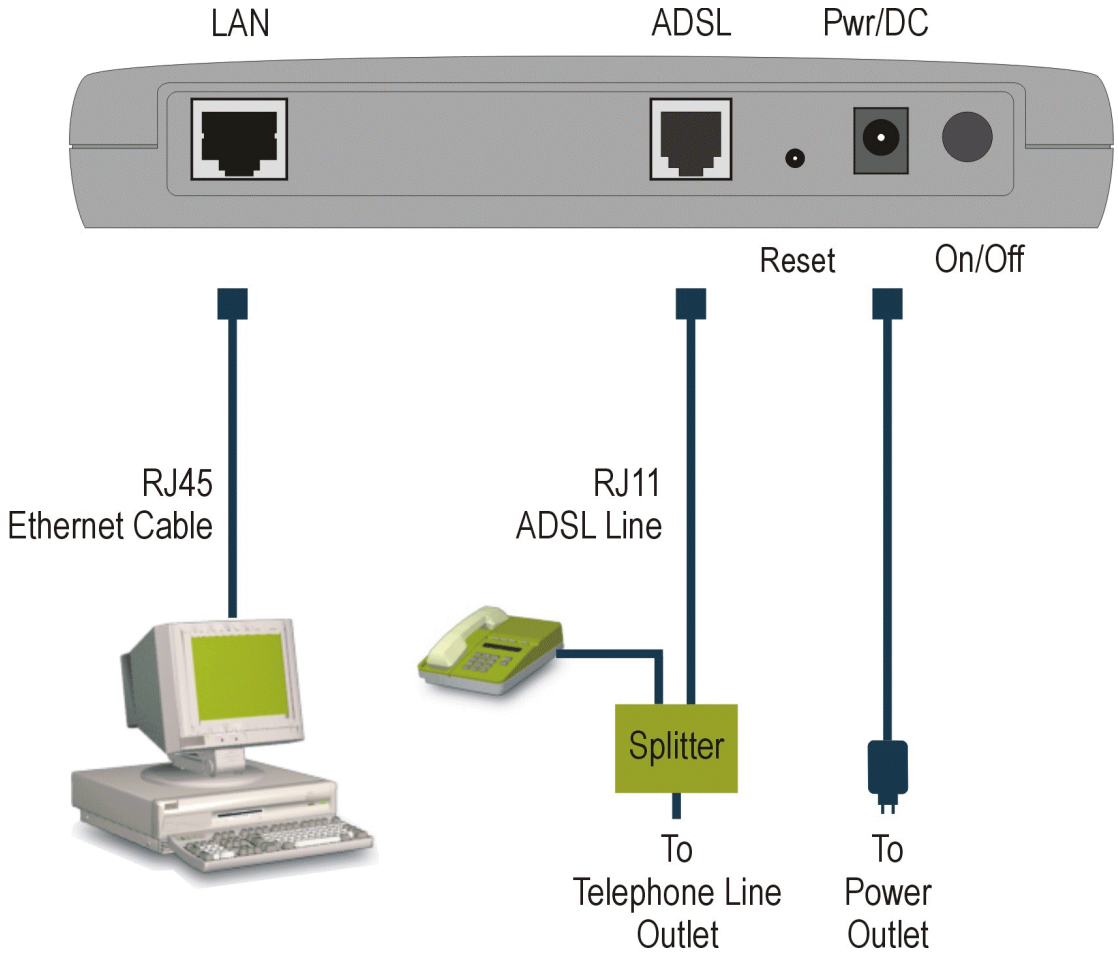
This section contains useful information about the router:

- Connection diagram.
- Indicators.
- Technical specifications.

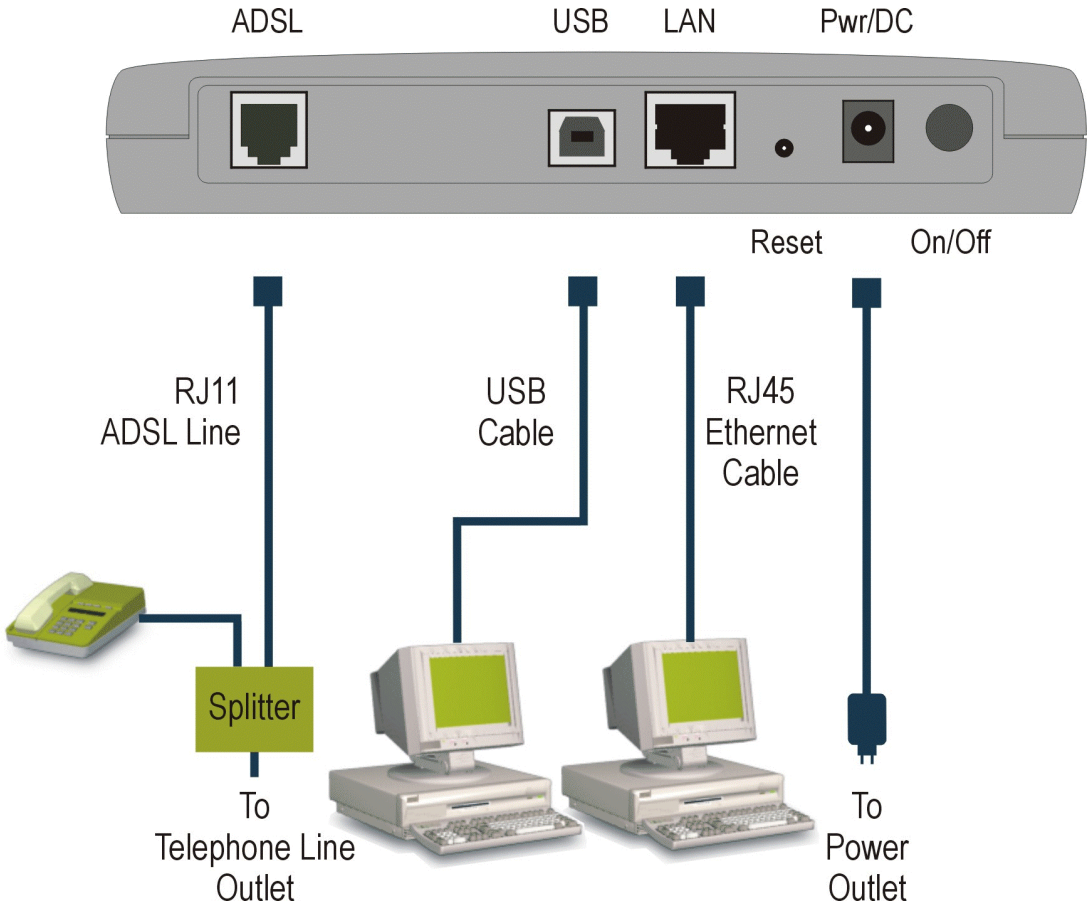
8.1. Connection Diagrams

The following figures show how the routers are connected to the computers, telephone network and power source.

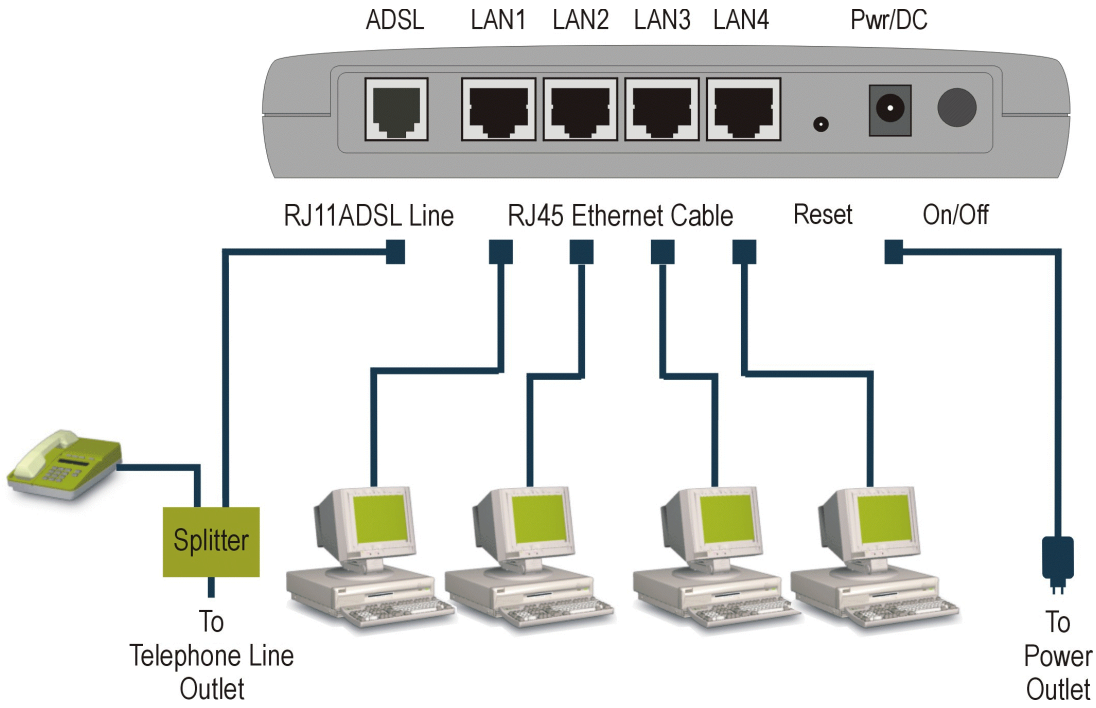
8.1.1. B-FOCuS 270 Connections



8.1.2. B-FOCuS 285PR Connections



8.1.3. B-FOCuS 400PR Connections



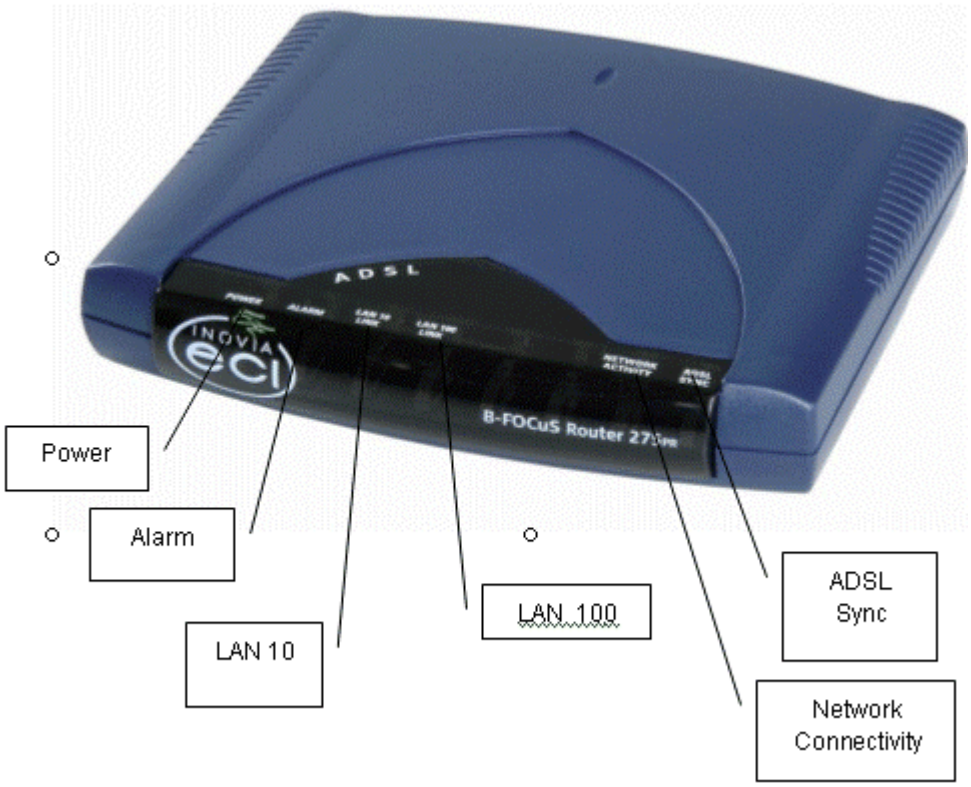
8.2. Indicators

The router's front panel contains these LED indicators:

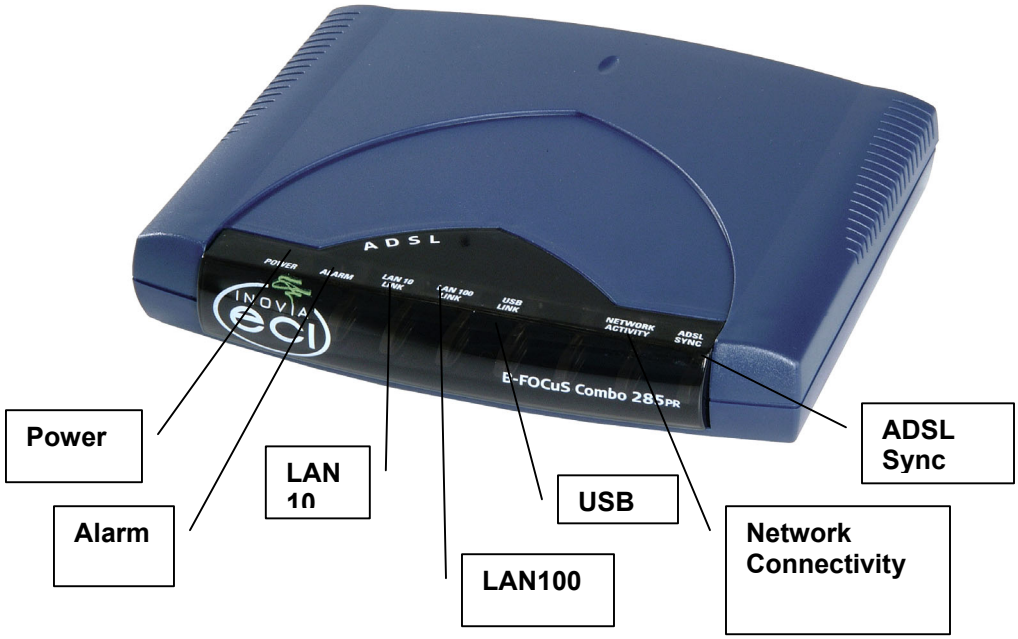
LED	Condition	Status
Power	Off	Power is off.
	On	Power is on.
Alarm	Off	The modem is operating properly.
	On	The modem has a problem. Please call your service provider.
LAN 10 Link (270)	Off	The modem's 10Base-T port is not connected to the computer.
	On	The modem's 10Base-T port is connected to the computer and operating properly.
	Blinking	Indicates data transfer between the computer and the modem, using a 10Base-T connection.
LAN 100 Link (only 270)	Off	The modem's 100Base-T port is not connected to the computer.
	On	The modem's 100Base-T port is connected to the computer and operating properly.
	Blinking	Indicates data transfer between the computer and the modem using a 100Base-T connection.
USB Link (only 285)	Off	The modem's USB port is not connected to the computer.
	On	The modem's USB port is connected to the computer and operating properly.
	Blinking	Indicates data transfer between the computer and the modem using a USB connection.
LAN Link 1-4 (only 400)	Off	The modem's LAN Link 1-4 ports are not connected to the computer.
	On	The modem's LAN Link 1-4 ports are connected to the computer and operating properly.
	Blinking	Indicates data transfer between the computer and the modem using a LAN Link 1-4 ports connection.
Network Activity	Off	Data is not being transferred between the modem and the ADSL line.
	Blinking	Data transfer is occurring between the ADSL line and the modem.
ADSL Sync	Blinking	The modem is trying to synchronize with the telephone exchange equipment.
	On	The modem is synchronized and ready for operation.

The following diagrams show the location of the routers' indicators.

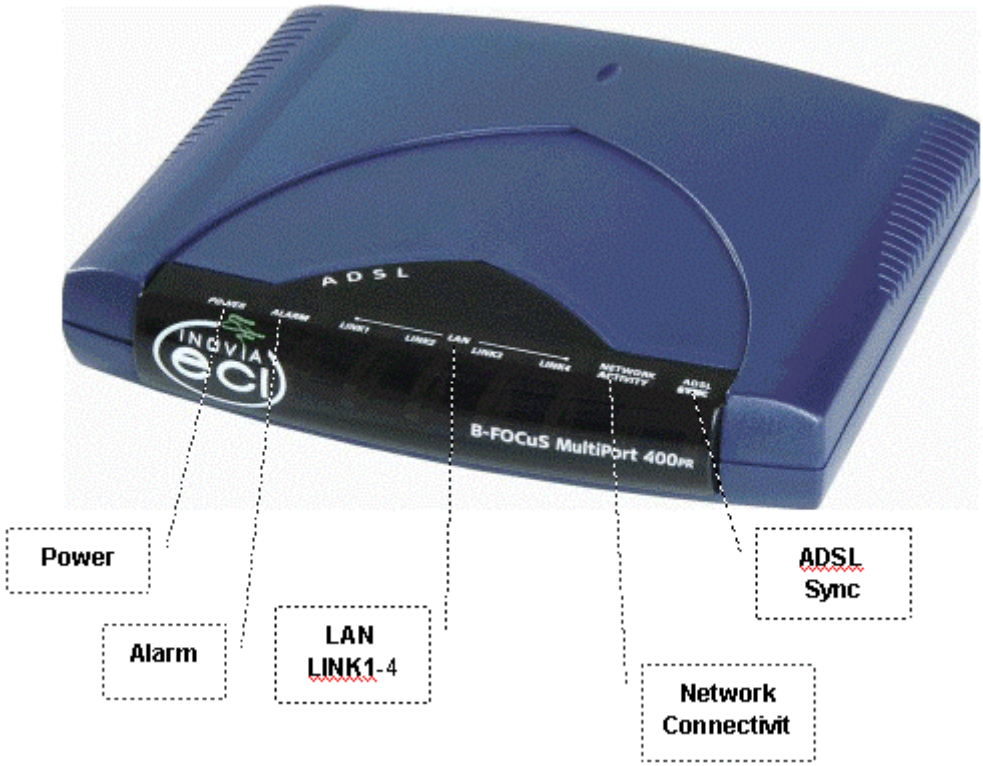
8.2.1. B-FOCuS 270PR



8.2.2. B-FOCuS 285PR



8.2.3. B-FOCuS 400PR



8.3. Specifications

8.3.1. Standard Compliance

- ADSL (ANSI T1.413 Issue 2).
- G.992.1 (G.dmt – including Category I).
- G.992.2 (G.lite).
- G.992.3 (ADSL2) Supported as of Q4/2003
- G.992.5 supported as of Q1/2004.
- G.994.1 (G.hs – including handshake protocol).
- Multi-Protocol Over AAL5 (RFC 1483 &2684).
- ATM Forum UNI version 3.1 & 4.0 PVC.
- Supports VC-based and LLC multiplexing for 32 VCs.
- PPP over AAL5 (RFC 2364).
- Classical IP over ATM (RFC 1577).
- PPP (RFC 1661).
- PPPoE (RFC 2516).
- IpoA (RFC2225).

- Supports fast and interleaved mode.
- DMT Issue 2 frequency modulation-based ADSL physical layer.
- ADSL (DMT Issue 2) interface.
- Downstream data rate up to 8 Mbps.
- Upstream data rate up to 1 Mbps.
- ATM cell delineation adherent to ITU-T I.432.
- Supports ATM Forum-compliant PVC.
- Status LEDs indicating Ethernet and ADSL activity.
- Built-in dying gasp (optional).
- Supports SSH.

8.3.2. Software

8.3.2.1. Routing

- IP (RFC 791), UDP (RFC 768), ICMP (RFC 792), ARP (RFC 826).
- IGMP for IP Multicast.
- RIP V1/V2.
- Static routing.
- DHCP relay, client, and server (RFC 2131 and 2132).
- DNS relay & client.
- NAPT supports maximum 2000 simultaneous connections.
- NAT/PAT (RFC 1631 & 2663 & 3235) supports multimedia applications such as NetMeeting, CuSeeMe, HTTP, FTP, ICMP, Pop3, Telnet, RealPlayer H.323, and VPN pass-through (PPP & IPSec).
- Built-in PPPoE and PPPoA.

8.3.2.2. Bridging

- IEEE 802.1D transparent learning bridge.
- Ethernet over ATM PVCs (RFC 1483 &2684).
- Supports filtering based on source MAC address.
- Up to 128 MAC learning addresses.
- VLAN transparency.

8.3.2.3. Quality of Service (QoS)

- Supports multiple levels of QoS: UBR, CBR, nrtVBR, rtVBR, SCR and MBS.
- Traffic Management v 4.1.

8.3.3. Management

- HTML browser interface for Web-based management and software upgrade, password-secured.
- Telnet (RFC 854), HTTP (RFC 1945), FTP (RFC 959), TFTP (RFC 1350), and CLI.
- AOC and EOC management channel support (per ITU-T Recommendations G992.1 and G997.1).
- Supports OAM F4/F5 loopback and AIS-RDI cells.
- Supports OAM F5 continuity check functionality.
- Supports SNMP agent and RFC1213 MIB II (via Telnet).

8.3.4. Security

8.3.4.1. Stateful Firewall Security

Extracts state-related information required for the security decision from all application layers.

8.3.4.2. Packet Filter Firewall

Capable of filtering all information available in the IP packet:

- Source and destination interface.
- IP address and port.
- TCP incoming/outgoing connections.
- TCP header (SYN/ACK/URG).
- Type of service, protocol, and ICMP type.
- Arbitrary bytes in the packet header or packet.
- Payload.
- PAP, CHAP and PPP (RFC 1334) Authentication.

8.3.4.3. Content Filtering

Filtering based on domain names.

8.3.5. Physical Interface

- Dimensions: 175mm x 152mm x 31mm.
- 1 RJ-11 port for ADSL connection.
- 4 RJ-45 ports for 10100Base-T Ethernet (IEEE 802.3) or 100Base-T Ethernet (IEEE 802.3u) LAN. Auto sensing and half/full duplexing are supported:
    - PR270 and PR285: one port.
    - PR400: four ports.
- USB 1.1 port – only in B-FOCuS PR285.
- 1 power jack for AC power adapter.
- Wall-mount option.

8.3.6. Environment

- Ambient Temperature: -5°C to 45°C.
- Relative Humidity: 5% to 95%.
- Transportation Temperature: -40°C to 70°C (packaged).
- Transportation Humidity: 95% (packaged).

8.3.7. Power

- 110/220V AC +/-10%, 50 ~60Hz,
    - 270PR and 285PR: 9V 800mA.
    - 400PR: 9V 1.2A.
- Power Consumption:
    - 270PR and 285: lower or equal to 5W.
    - 400PR: lower or equal to 6W.
- Auto Restart: Following a power failure and restoration, the router restarts automatically.
- Spectral Mask: Complies with ITU-T Recommendations G992.3 (Annex A). Average PSD within the pass band is lower than -38 dBm/Hz. Pass band ripple is lower than +3.5 dB.
- Loss of Power Indication: Complies with ITU-T Recommendations G992.1.

8.3.8. Compliance

- FCC Part 15, Subpart B, Part 68.
- UL 1950.
- CE EN60950.